FEEDSTUFFS

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

Volume 28—Number 49 | DECEMBER 8, 1956 | 1 Year $4, 2 Years $7

Tight Supplies of Fish Liver Oils For Feed Noted

By GEORGE W. POTTS
Feedstuffs Editorial Staff

NEW YORK—It is clearly indicated that a shortage has developed in all fish liver vitamin A oils that will cause a tight supply situation and strengthening of prices for some time to come.

The situation results primarily from poor fishing conditions in Japanese waters which have historically been a principal supply source of fish liver oils for feeding purposes in the U.S.

While this shortage of fish liver oil has developed, it is pointed out that it does not mean an over-all shortage of vitamin A for the feed industry. Synthetic vitamin A producers, it is said, can supply virtually unlimited quantities and it is assumed that use of synthetic A products will expand. Dehydrated alfalfa meal, of course, is also a source of vitamin A, although alfalfa meal supplies are shorter this year.

It is reliably reported that Japanese exporters of oil are unable to fulfill futures contracts, and some shippers have stated in cables to this country that they cannot furnish any oils now and are not in a position to make any offers for any potency for next year shipment (January-February) due to very scarce

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LOW BROILER PRICES

ATLANTA — Continuation this week of low broiler prices is noted in reports from various areas which are assembled and issued daily by the Federal-State Market News Service in Atlanta. Farm prices as low as 13¢ lb. were noted in the Dec. 4 report, but in most areas it appeared that prices were around 15@16¢ lb. In north Georgia, broilers were selling at 14½@15¢ lb. at farms, while in the Delmarva area prices were 16@17¢, mostly 17¢. In a number of other areas, prices ranged from 14¢ to 17¢ lb., but mostly 15@16¢ lb. The lowest prices were reported in northwest Arkansas, with sales made at levels as low as 13¢; some birds went for 14¢.

Feed Production School Report Provides Mill Labor Time Standards

Production School Pictures on Page 8

By ROGER BERGLUND
Feedstuffs Editorial Staff

KANSAS CITY—If ever there was any doubt about it, more than 600 feed men this week were given convincing evidence that the feed manufacturing industry is in an increasingly technological and competitive age that demands more efficient, precise and automatic feed manufacturing operations.

The evidence was clearly revealed in the extensive program presented at the seventh annual Midwest Feed Production School, held Dec. 3-5 at the Muehlebach Hotel in Kansas City under the sponsorship of the Midwest Feed Manufacturers Assn.

Some 630 feed men from 41 states, Canada, Mexico and Norway—more than 200 above the previous record attendance—were on hand for the three-day event.

Labor Cost Standards

The principal feature of this year's school was the presentation of the results of a feed manufacturing cost study which established labor time standards for the various phases of feed production in different size mills, small as well as large.

This report provides the industry, for the first time, with man-hour standards which may be used in checking and improving feed mill operations. With such standards and a procedure for analyzing labor costs, many more mill operators will be able to examine each part of their operations critically and take action to improve their facilities and supervision. Thus, the standards become a major further step in putting feed production on a much more exact and scientific basis than in former years.

A good deal of the school program this year was related to the cost study, but in other respects, too, the talks and discussions reflected the

(Continued on page 83)

Commodity-Feed Price Ratios Show Little Change; Egg-Feed Ratio Down

WASHINGTON — Little change was noted generally in the relationships of what farmers received for livestock and poultry products and what they paid for feed in the month which ended Nov. 15. The chicken-feed and turkey-feed ratios were unchanged from the previous month; the egg-feed ratio decreased 0.3 and the milk- and butterfat-feed ratios were up slightly. The hog-corn ratio declined 1.3.

The U.S. Department of Agriculture report on farm prices shows that on Nov. 15 a dozen eggs would buy 10.5 lb. feed compared with 10.8 a month earlier. Both figures were considerably below the 12.9 lb. in November, 1955, and the 10-year average for November of 13.2. (Comparisons by regions are shown in the table on page 88.)

On Nov. 15 a pound of milk would buy 1.52 lb. dairy concentrate feed compared with 1.51 a year earlier and 1.44 the 20-year average for November. In mid-November a pound of butterfat would buy 23.1 lb. concentrate, an improvement from the 22.4 of a month earlier and the same figure the year before. The 20-year average for mid-November is 25.

The USDA report shows that the broiler-feed ratio remained the same during the month. On Nov. 15 a pound of live broiler would buy 3.5 lb. feed compared with the same figure of Oct. 15 and 4.4 for Nov. 15, 1955.

Lower prices received for hogs caused the hog-corn ratio to go down to 11.7 on Nov. 15. A month earlier,

(Continued on page 86)

USDA Makes Change in Policy on Corn Price

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The U.S. Department of Agriculture has taken the first step to bring the delivered price of U.S. corn and grain sorghums and oats at foreign ports into balance. This policy change was noted when USDA announced that starting Dec. 6 and daily thereafter it would accept offers for graded corn for export. Sales would be made on the basis of f.o.b. ships, on track, or in store at East Coast or Gulf ports.

There will be no limit on the quantity of corn which can be sold to any bidder under this expanded corn export program.

USDA officials, in explaining this major change, said that in the recent past CCC sorghums and oats on a deliverable basis to foreign ports have been selling at between $7 and $10 a ton cheaper than corn when measured on a total digestible nutrient basis.

While USDA does not indicate any upset price with the new corn sales policy, it does, however, set some guide lines for the trade in bidding for Commodity Credit Corp. stocks of graded corn. USDA officials say their purpose is to bring about the alignment of corn prices as against the prices for sorghums and oats. They believe this may mean some reduction in the corn export sales price and an increase in the asking price for the other two feed grains. The exact method by which this equalization will be effected remains to be disclosed. It will be revealed when

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FEEDSTUFFS *Features This Week*

PELLETING RESEARCH: Washington State College research indicating a nutritional or chemical, as well as physical or density, effect from pelleting is described on **page 18.**

SHIPPING COSTS: Advice on reducing shipping and receiving costs is provided on **page 39.**

PROTECTIVE MILK: Minnesota research on protective milk may have significant effects on the feed industry, and this research and possible applications are outlined on **page 42.**

POULTRY CHANGES: Some far-reaching changes in the poultry industry, including more production of eggs under contract, are predicted on **page 60.**

AMINO ACIDS: Recent work on amino acids in poultry nutrition is reviewed by Dr. F. H. Kratzer on **page 12.**

GOVERNMENT IN BUSINESS: Efforts to return the grain marketing system to private enterprise are explained by Lloyd N. Case on **page 44.**

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Ralston Purina Plans 5-for-1 Stock Split

ST. LOUIS — Donald Danforth, chairman of the board of directors of Ralston Purina Co., has announced that the directors Nov. 30 declared the regular quarterly dividend of 75¢ per share on the common stock of the company, payable Dec. 14 to shareholders of record Dec. 10, and an extra cash dividend of 75¢ on such stock payable Jan. 9, 1957, also to holders of record Dec. 10.

In addition the directors have recommended, for consideration and approval by the shareholders at their annual meeting Jan. 7, a proposal (1) to change the par value from $25 per share to $5 per share, and (2) to split the stock on a 5-for-1 basis so that four additional shares will be issued for each share held on the record date.

If approved, certificates for the new shares will be distributed Jan. 9, 1957, to all shareholders of record Dec. 10, 1956; and it will be the intention of the directors to put the new stock on a 20¢ quarterly dividend basis.

Mr. Danforth stated that in the judgment of the directors the growth of the company warrants this action.

★ FEEDSTUFFS ★

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More on Standards

OUR comments of a week ago concerning the work being done by the Indiana feed control department, headed by Dr. F. W. Quackenbush, on evaluating formula feeds have stimulated some pertinent thoughts on the subject from Dr. E. I. Robertson. As most of our readers will recognize, he is director of nutrition for John W. Eshelman & Sons, Lancaster, Pa. He has long been prominent in feed industry affairs and is a former head of the poultry department at Pennsylvania State College.

We quote from Dr. Robertson's letter:

"The use of feeding tests to evaluate and determine the purpose of a feed has come in for considerable discussion during the past year. As a research tool, few of us question the work carried on and reported from Purdue University by Dr. F. W. Quackenbush. However, when used to upgrade products offered for sale and to rate products competitively some of us believe that it is carrying feed control beyond checking for compliance with guarantees made for the product.

"While the intention is to keep the information resulting from these tests confidential and available only to the manufacturer, the danger of 'leaks' is there and some manufacturer may be hurt by a 'whispering' campaign in which all of the information is not given but merely the rating. Caution is required to see that only comparable products are fed in relation to the standard, for differences in protein level would not be taken into account in the evaluation.

"A case in point on the protein level is the experiment carried on in Maryland a year or so ago in which various competitive feeds were fed and rated against the Maryland high efficiency ration. In one case a starter and grower ration guaranteed at 18% protein was rated on the same basis as a broiler starter ration carrying 24% protein. Obviously, the economy ration purchased for its all-in-one convenience would not compare favorably in performance to four weeks of age in contrast to the higher protein, higher energy in other products. I believe that Dr. Quackenbush rates all feeds in relation to the standard reference chick diet, yet he would give no consideration to protein beyond 20%.

"The disturbing part of this program is that it carries feed control beyond what has been the historical basis in the past and raises the fundamental question on the purpose of feed control. Is it to upgrade products offered for sale, or is its function to check compliance with the guarantee, permitting the manufacturer to offer for sale any product that has feeding value? The objectives of feed manufacture and feed control have received a lot of study by a joint committee composed of three feed control officials appointed from the Southern Feed and Fertilizer Control Assn. and three members representing industry. The latter were appointed by W. E. Glennon, president of the American Feed Manufacturers Assn., to study feed standards.

"The nutrition application committee of the AFMA Nutrition Council has delved into this question during its last three meetings. The reports of the two previous meetings are shown in the proceedings of the Nutrition Council in its November, 1955, report and in the May, 1956, report. The November, 1956, report is now in press at the AFMA office. These reports represent the ideas and opinions from industry touching on the questions raised by your editorial."

★ ★ ★

THE FEED STANDARDS COMMITTEE of the Southern feed control group published some general conclusions in its 1956 report which indicate the problem and the thinking concerning it. In part, these state:

"No worthwhile feed should be kept off the market because of standards. If a dispute arises, it might be well to arbitrate the matter, not by a state official alone, but by a committee made up of control officials, industry and research representatives from the state in question and other states as well. A control official would do well not to take a positive stand until such a review has taken place and then if possible have the administrative ruling in keeping with the findings of such a committee. Such a procedure falls in the category of a more intelligent use of standards and is justified on the basis that action in one state affects all states.

"The committee feels that machinery must be worked out to do this. Undoubtedly this will present problems of geography, expense and time. But we believe that it should be seriously considered. There is no reason why such a body might not only pass on matters of this sort but develop model labels for products including statements as to purpose with alternative statements of purpose so that a manufacturer might use the one that best fits his needs.

"In conclusion, undoubtedly a negative attitude prevails in some quarters regarding standards. Feed manufacturers particularly are fearful, not so much as to what exists but what may develop, afraid of how far control officials may go. This can and should be seriously and intelligently approached. There should be no reason for 'fear' on the part of any one. A sincere desire to know and use the truth with the means of implementing this into our programs is all that is needed."

It is obvious that this is a subject of substantial interest to the feed industry and to feed control officials. We will welcome further comments on it.

A FEEDSTUFFS FORMULA FEEDS: HOW'S BUSINESS? FEATURE

Volume of feed sales was maintained or increased in all reporting areas this week, with demand for seasonal items developing in a normal early-December pattern. Sales of dairy and beef feeds are at important levels, and in some areas a welcome improvement in hog feed demand developed. Sales of laying feeds were steady, and a heavy tonnage of broiler feeds continues to move out. Feed ingredients were steady to stronger, and the index of wholesale feedstuffs prices advanced .4 point to 82.8 while the feed grain index declined 1.6 points to 76 in the week ending Dec. 5 (Ingredient details on pages 84-86.)

Southwest

Feed business in the Southwest this week seems to be rather spotty. Some mills report a rush of business—much better than in the previous week—while others say that business is perhaps just a shade better than the so-so period a week ago.

Cattle feed seems to have picked up some. The colder weather has virtually eliminated grazing. And livestock growers are laying in their winter stocks of feed before the snow prevents doing so. The drouth feed makes up a good share of the cattle feed volume for a number of mills.

Hog feed demand is termed disappointing, though it seems to be holding at about the same level as in the previous week. A possible reason for the slower-than-expected demand is the large number of hogs marketed.

The demand for chicken feed continues quite strong. Despite the poor broiler price situation, the chicks are started and they must be fed, so the feed demand is maintained. This situation is not universal, however, and some mills note that compared with 60 days ago, there has been a substantial slackening. Laying mash business ranges from fair to very good for different mills.

Southwestern mills are producing at varying rates. Some mills are running six days, three shifts a day, while some others have maintained a five-day week but have cut back a shift. The order backlog situation varies as much.

Most ingredients are steady or a little lower in price this week and mills indicate that prices will be steady to 50¢@$1 lower next week.

Southeast

Feed demand in the Southeast remained stable this week. Baby chick placements in north Georgia broiler producing area were again on the increase over the preceding week and still are running well ahead of the same period last year. This means increased feed tonnage over last year, and as far as broiler operations are concerned, feed business would have to be considered good.

Cold weather, which has extended well into Florida, is reported to have killed practically all pasture and feed operations are reported to be slightly improved for dairy and beef cattle down in this section. Considerable quantities of ground snap corn continue to move from southeastern states into the drouth area of the Southwest. This has held the price above last year's lows, and with lower prices on citrus pulp this year as against last year, demand for this material within the Southeast has been on the slow side.

Shelled corn is moving well, and local supplies have dwindled. Citrus molasses continues to be in good demand by feed manufacturers, and supplies remain tight. If the present situation continues, it is expected that prices will be advanced for this material in the near future. Roughage materials such as cottonseed hulls have been in good demand, and supplies are difficult to locate for nearby shipment. Feed mill running time is reported about unchanged.

Northwest

Formula feed demand was steady to improved in the Northwest this week, and volume now is considered at least up to seasonal levels and in some cases at an exceptionally good level. One concern expects to chalk up a record volume in December.

Dairy feeds are making up a large portion of current production, and sales of feeds for beef cattle on feed lots also are increasing.

An encouraging development this week was renewed interest in hog feeds. Sales in this line have been lagging considerably this fall.

Sales of laying feeds, principally concentrates, are steady to improved, and additional improvement in this business is anticipated.

Operations held to recent levels, with two shifts operating at major plants. Saturday operations were scheduled at one plant.

Ohio Valley

Formula feed sales this week in the Ohio Valley continued at the better pace of last week, when snow and sub-freezing temperatures forced a sharp increase in indoor feeding. With the exception of one day of warm weather early this week, the mercury has remained at well below the freezing point in this area, and if the predictions of all the weather prophets prove correct, severe weather will continue through the winter.

This, of course, will insure a steady flow of orders in considerably larger tonnages than have been placed during recent months. In most demand this week were dairy feeds, which moved out in larger volume than at any previous time this year. Improvement also was noted in sales of egg mashes and hog and broiler feeds.

Placements of baby chicks on valley farms are reported in large num-

(Continued on page 88)

how science's latest developments are applied to feed manufacturers' problems...

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The illustrated section of the recently enlarged 450-acre Peter Hand research farm contains (counter-clockwise): large broiler house with capacity for more than 10,000 birds; special chick finishing house; unit for mixing experimental rations; storage shed; barn and concreted yards exclusively for swine; farrowing house, its second floor equipped with batteries for starting chicks.

Not shown in photo is a 400 ft. x 50 ft. turkey rearing house and sunporch; pig rearing unit; and cattle barn. The farm, and its research program is headed by Dr. H. S. Wilgus, recognized authority on poultry and animal nutrition.

Among many projects conducted at the farm have been: use of Lipamone in improving weight gains and feed efficiency of poultry; relative effectiveness of antibiotics; observations on control of CRD with vitamins and antibiotics; effect of energy levels on optimum vitamin levels.

You, as a successful feed manufacturer, know that there is no one "magic formula" to cover all needs. But do you have the time and facilities to test and to evaluate all of science's latest findings before applying them to your own practical problems? At Peter Hand we can help you go a long way toward doing this through our continuous experimental program on the Peter Hand research farm.

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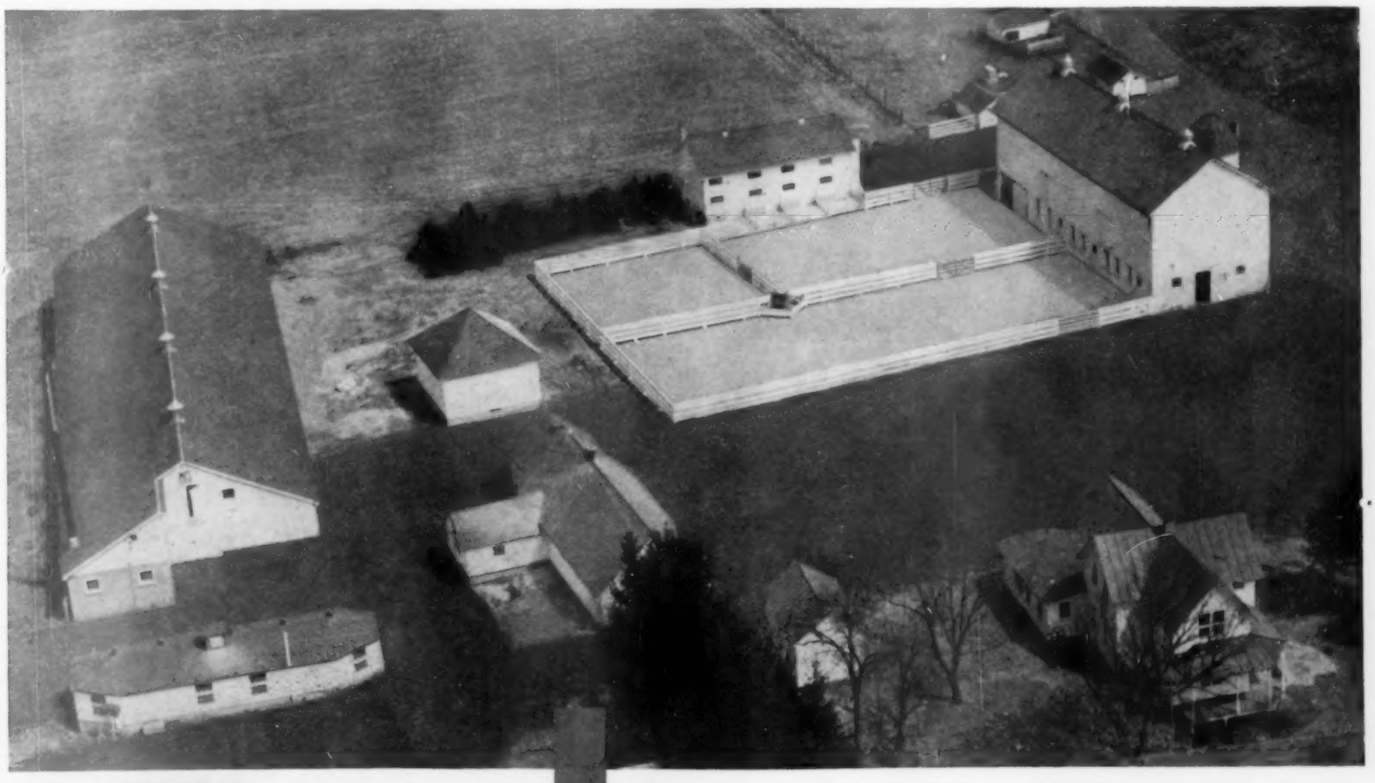

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Corn Referendum Has Strong Bearing on Soil Bank Success

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Backing up the soil bank appeal in the forthcoming corn referendum, Ezra Taft Benson, secretary of agriculture, has added another attraction to gain support from the farmers to vote for the base acreage allotment of that proposition. Last week he announced that if farmers signing up for the soil bank acreage reserve program would undertake a two year commitment the U.S. Department of Agriculture would give a 10% premium for the per-bushel payment on crops.

This would mean that the farmers contributing land to the soil bank would have to put the same quantity and same land into the bank for an extra year. The view is that a soil bank year only would tend to expand the productivity of acreage if it was planted in another year for production.

While Mr. Benson has not announced this proposition as available for other than wheat farmers, it may be expected that he would use the same incentive for the corn farmer since that crop poses an even more difficult surplus problem to the administration.

The only formal announcement for the 10% incentive payment covers the 1957-58 crop wheat. Farmers would obtain for their 1958 crop 110% of the yield payment—or about 66% of the parity price which would mean about $1.32 bu. for the second year if the identical acreage was kept out of production and put into the soil bank.

The administration is seen now as fearful of the outcome of the corn referendum on the 1957 corn crop which is being fought tooth and nail by the National Farmers Union. Within USDA it is said that unless the government sweetens the opportunity by a higher payment for soil bank contributions the corn soil bank referendum will lose and the corn belt will revert to the acreage allotment schedule of the AAA of 1938 with an announced acreage allotment of not more than 37 million acres for eligibility for price support.

USDA officials have been hopeful that they can terminate the soil bank program with the 1959 crops. They hope by that time the effects of stimulated exports and reduction in productive crop land for the surplus crops would have the effect of bringing production into line with demand.

After broad conversations across the nation with trade and govern-

(Continued on page 87)

"It Pays Me To Be A Murphy Dealer"

"I've been handling the MURPHY line for 10 years. One day not too long ago, I sat down and wrote the MURPHY people a letter as to why I'd done so well with their line. The subject of the letter was 'Why It Pays Me To Be A MURPHY Dealer.' And here's my letter.

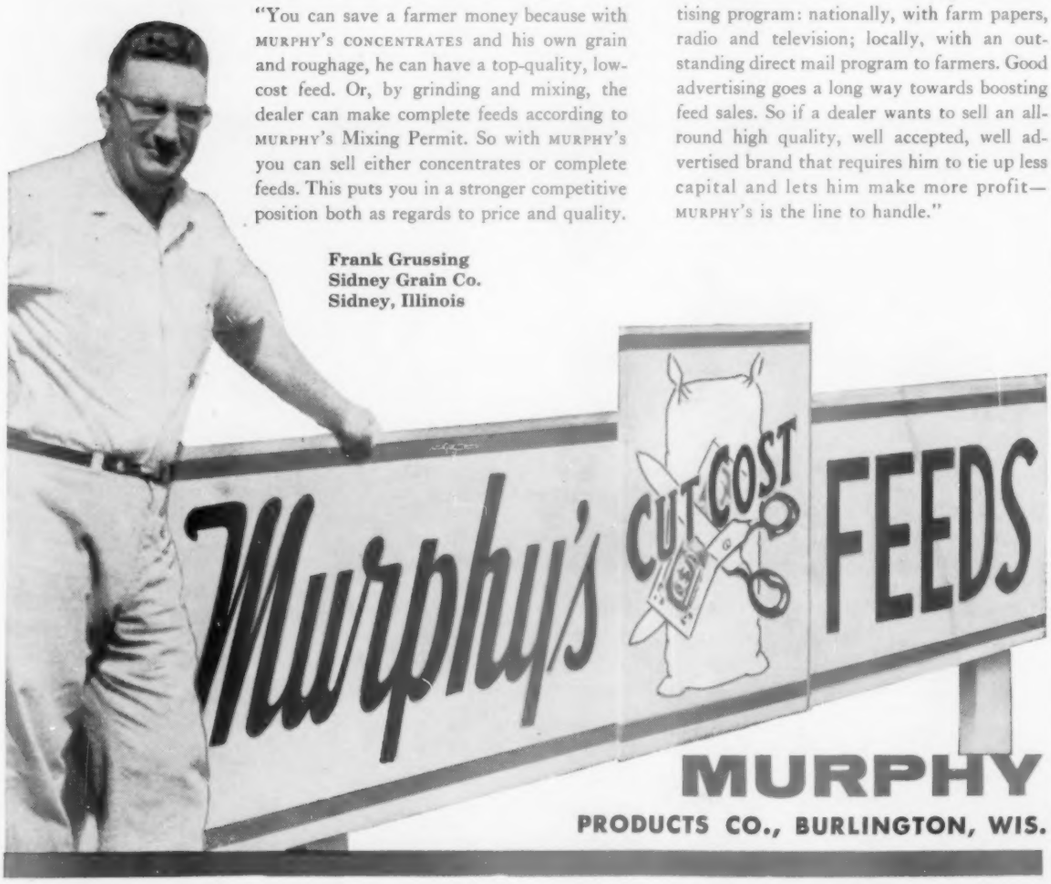
"When you are a MURPHY dealer, you don't have to tie up a lot of working capital in your feed inventory. And because MURPHY'S is popular, you turn your money more often. You make more money on your investment.

"You can save a farmer money because with MURPHY'S CONCENTRATES and his own grain and roughage, he can have a top-quality, low-cost feed. Or, by grinding and mixing, the dealer can make complete feeds according to MURPHY'S Mixing Permit. So with MURPHY'S you can sell either concentrates or complete feeds. This puts you in a stronger competitive position both as regards to price and quality.

"MURPHY'S has a full line of poultry and livestock concentrates that can be fed free choice to poultry, hogs and beef cattle. So you can save the farmer work. Hand feeding, self-feeding, or free-choice feeding—MURPHY'S does a good job. I believe MURPHY'S is the only company that can safely recommend free-choice feeding of concentrate to beef cattle. With MURPHY'S BEEF CUT-COST, a farmer doesn't have to worry about cattle over-eating.

"And last and very important, the MURPHY PRODUCTS COMPANY has a very good advertising program: nationally, with farm papers, radio and television; locally, with an outstanding direct mail program to farmers. Good advertising goes a long way towards boosting feed sales. So if a dealer wants to sell an all-round high quality, well accepted, well advertised brand that requires him to tie up less capital and lets him make more profit—MURPHY'S is the line to handle."

Frank Grussing
Sidney Grain Co.
Sidney, Illinois



Minnesota Group to Discuss Proposal For New Egg Law

MINNEAPOLIS — The Minnesota Poultry Industry Council has called for an open meeting on Dec. 11 at the State Office Building, St. Paul, to discuss proposals for revising Minnesota's egg laws.

The council is made up of representatives of industries allied with the poultry industry, its purpose being to spearhead a movement for improvement of egg quality in Minnesota. Improved egg quality, council members feel, is necessary for the state to maintain its position in the national egg market. About 70% of Minnesota eggs move out of the state for consumption.

Among the important features of the council's proposal for revising the egg laws are the following:

An annual license fee for any person dealing in eggs.

An annual inspection fee computed on the basis of the number of cases of shell eggs handled at each place of business.

An annual license fee for candlers and graders of eggs.

An annual license for any person in the egg breaking business.

Creation of an egg law inspection fund to enforce provisions of the egg law.

Setting up of standards for candling, grading, handling and storing eggs. Eggs must be held at a temperature not to exceed 60° F. after being received by the first licensed dealer. (Every producer will be paid on the basis of the quality of eggs he puts on the market.)

No person shall deal in, or have in his possession, eggs for human consumption that are inedible.

All eggs sold at retail must have been candled and graded and must be clearly labeled according to the state's consumer grades. No ungraded or unclassified eggs may be sold.

Clarence Palmby Head Of CSS Grain Division

WASHINGTON — Clarence D. Palmby has been appointed as director of the grain division of the Commodity Stabilization Service, effective Dec. 31. He will succeed Lloyd Case who is resigning Dec. 31 to become vice president of the Burdick Grain Co., Minneapolis.

Mr. Palmby, former chairman of the Minnesota State Agricultural Stabilization and Conservation Committee, has been serving as associate director of the grain division since April 3, 1956.

Mr. Palmby was born on a farm near Eagle Bend, Minn., and has been actively engaged in farming all his life. Since graduating from the University of Minnesota in 1940 with a degree in agricultural economics, he has operated a 240-acre farm at Garden City, Minn. He has also had broad experience in cooperative, farm organization and civic affairs.

FEED MAN DIES

NASHVILLE, TENN.—M. L. Holleman, Sr., former manager of the Mayfield (Ky.) Milling Co., died at the age of 66. He had been a resident of Nashville, Tenn.

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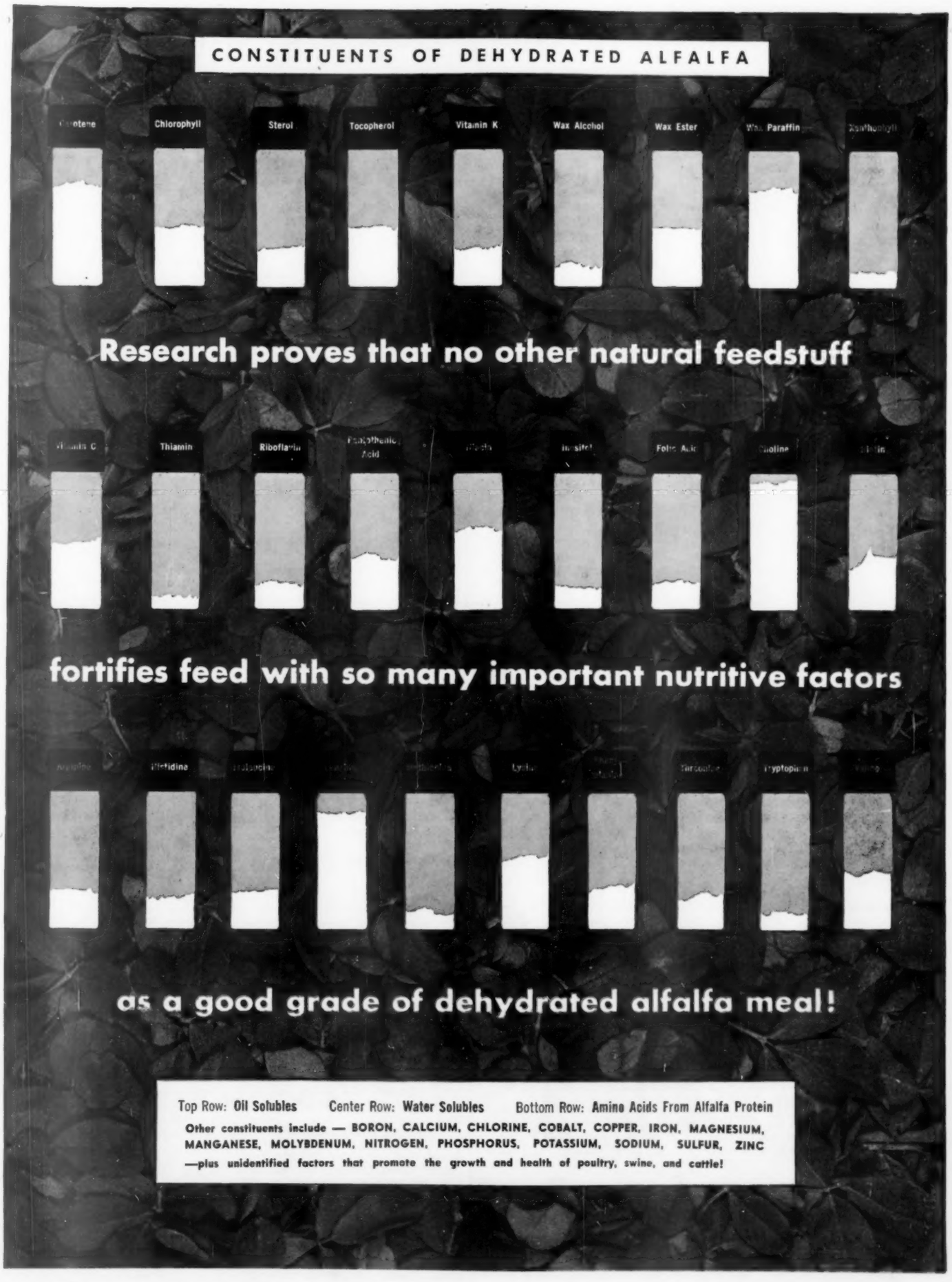
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Bottom Row: Amino Acids From Alfalfa Protein
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Formula Feed Production and Consumption, by States 1954-55

IN TONS

State	Production of Formula Feed		Consumption of Formula Feed		Consumption of Poultry Feed		Consumption of Dairy Feed		Consumption of Swine Feed		Consumption of All Other Formula Feed	
	1954	1955	1954	1955	1954	1955	1954	1955	1954	1955	1954	1955
Alabama	734,100	748,800	667,400	701,900	425,000	456,300	92,000	91,500	44,400	50,800	106,000	103,300
Arizona	46,800	48,200	132,700	115,300	99,000	84,900	25,100	21,800	4,500	4,700	4,100	3,900
Arkansas	371,500	356,600	590,800	584,100	342,600	311,200	174,600	193,700	30,600	37,200	43,000	42,000
California	3,281,500	3,150,200	3,201,800	3,060,500	2,060,800	1,862,700	613,800	687,400	57,200	61,600	460,000	448,800
Colorado	176,900	182,200	262,000	248,500	178,800	156,400	18,700	26,400	32,500	34,400	32,000	31,300
Connecticut	176,900	171,600	518,800	485,300	383,600	345,700	124,100	128,600	1,500	1,700	9,600	9,300
Delaware	521,300	505,700	399,600	362,200	381,900	344,500	12,600	12,200	3,000	3,400	2,100	2,100
Florida	172,500	176,000	739,200	662,500	531,200	468,000	166,800	148,800	32,100	36,800	9,100	8,900
Georgia	551,900	562,900	1,354,700	1,326,600	1,052,900	1,069,300	179,600	119,200	110,200	126,300	12,000	11,800
Idaho	56,900	58,600	135,500	129,600	86,300	72,000	22,200	29,500	24,000	25,300	3,000	2,800
Illinois	2,574,600	2,420,100	1,456,900	1,242,000	894,600	670,500	67,500	65,300	384,800	399,000	110,000	107,200
Indiana	1,108,300	1,041,800	1,254,000	1,161,300	621,800	538,000	49,000	36,200	297,200	308,200	286,000	278,900
Iowa	1,039,000	997,400	1,672,300	1,699,900	849,000	886,800	54,900	56,700	588,400	580,800	180,000	175,600
Kansas	557,600	535,300	617,900	573,100	421,100	374,100	75,300	79,400	98,500	97,200	23,000	22,400
Kentucky	493,000	478,200	532,800	531,000	234,400	217,300	100,400	107,700	70,000	81,000	128,000	125,000
Louisiana	271,600	277,000	341,100	326,300	149,100	127,700	108,000	111,500	30,000	34,400	54,000	52,700
Maine	104,700	101,700	499,300	484,400	354,200	334,200	119,100	124,000	6,900	7,700	19,100	18,500
Maryland	504,700	489,500	801,500	749,600	715,900	648,300	72,900	87,100	10,800	12,400	1,900	1,800
Massachusetts	476,800	462,500	813,200	731,800	658,700	577,900	129,600	126,900	19,300	21,700	5,600	5,300
Michigan	310,900	292,200	696,800	629,500	541,800	482,900	56,000	47,000	49,000	50,800	50,000	48,800
Minnesota	1,188,800	1,141,200	768,600	881,700	463,600	562,300	89,900	99,500	196,100	201,400	19,000	18,500
Mississippi	380,900	388,500	461,300	399,200	253,800	225,100	146,900	112,000	16,600	19,000	44,000	43,100
Missouri	1,780,400	1,709,200	1,110,000	1,332,500	359,400	495,500	221,200	318,600	148,400	146,600	381,000	371,800
Montana	45,700	47,100	*94,000	85,500	*35,900	26,600	2,700	3,600	17,400	18,300	38,000	37,000
Nebraska	558,600	536,300	556,500	524,600	157,900	127,600	21,300	27,700	92,300	91,100	285,000	278,200
Nevada	3,000	3,100	39,800	31,500	31,000	21,000	4,300	6,000	1,900	2,000	2,600	2,500
New Hampshire	204,300	198,300	232,800	213,400	167,500	147,600	60,100	60,500	2,200	2,500	3,000	2,800
New Jersey	541,500	514,400	775,500	688,900	579,500	525,200	169,900	136,500	13,100	14,400	13,000	12,800
New Mexico	40,800	42,000	186,700	160,600	147,900	128,600	19,100	12,000	10,200	10,700	9,500	9,300
New York	4,207,900	3,997,500	2,679,600	2,734,600	1,525,700	1,428,200	995,900	1,135,500	128,000	141,700	30,000	29,200
North Carolina	964,000	983,300	895,600	863,400	625,000	584,100	115,600	106,000	130,000	149,100	25,000	24,200
North Dakota	73,800	70,800	45,300	42,900	35,500	24,800	2,800	11,000	2,400	2,500	4,600	4,600
Ohio	2,936,500	2,760,300	769,800	719,800	481,000	452,300	113,000	85,500	170,000	176,300	5,800	5,700
Oklahoma	275,700	264,700	460,900	404,900	235,500	210,100	147,400	106,400	51,000	62,000	27,000	26,400
Oregon	445,900	423,600	436,900	389,700	260,000	224,700	136,000	121,400	19,400	22,600	21,500	21,000
Pennsylvania	1,797,900	1,708,000	1,646,700	1,573,100	1,086,600	1,041,300	433,500	399,900	65,100	72,100	61,500	59,800
Rhode Island	3,800	3,700	95,800	81,800	67,500	61,300	25,800	18,000	1,000	1,100	1,500	1,400
South Carolina	191,300	195,100	387,000	326,200	288,200	221,100	50,000	51,800	32,800	37,600	16,000	15,700
South Dakota	59,200	56,800	143,200	138,200	71,400	59,500	3,200	9,000	51,600	53,000	17,000	16,700
Tennessee	1,497,200	1,527,100	630,400	667,500	387,400	422,200	132,900	121,600	94,200	108,000	15,900	15,700
Texas	1,690,500	1,622,900	2,377,700	2,295,200	1,179,400	1,118,500	372,800	330,700	167,500	203,800	658,000	642,200
Utah	223,600	230,300	*202,200	198,100	*176,000	164,200	18,400	26,400	700	700	7,100	6,800
Vermont	575,400	558,100	709,100	683,500	439,800	398,900	252,400	268,100	700	800	16,200	15,700
Virginia	669,500	649,400	863,600	758,700	561,400	480,800	175,500	140,800	46,800	54,100	84,900	83,000
Washington	621,100	590,000	581,400	575,500	357,800	308,400	166,800	207,800	21,300	24,800	35,500	34,500
West Virginia	72,000	69,800	373,800	304,700	248,400	193,800	86,300	69,000	19,900	23,000	19,200	18,900
Wisconsin	441,600	415,100	796,600	732,900	312,600	273,300	193,900	172,500	78,100	80,200	212,000	206,900
Wyoming	45,200	46,600	148,200	132,600	84,200	69,600	4,900	5,200	1,100	1,200	58,000	56,600
Totals	35,067,600	33,809,700	35,162,300	33,746,600	21,602,600	20,025,300	6,424,700	6,463,900	3,484,700	3,696,000	3,650,300	3,561,400

*Revised.

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GRANULAR GRIND IS GOOD BUSINESS!

Estimates of formula feed production and consumption by major classes for each state in the U.S., prepared by Feedstuffs' research department, present the details of the 1955 decrease in formula feed consumption from the total amount consumed in 1954.

Total formula feed consumption in the U.S. in 1955 is shown at 33,746,600 tons compared to 35,162,300 tons in 1954, a decline of 1,415,700 tons. The 1955 total includes 20,025,300 tons poultry feed, 6,463,900 tons dairy feed, 3,696,000 tons swine feed and 3,561,400 tons all other formula feed.

Dairy feed consumption increased by 39,200 tons. Consumption of swine feed increased 211,300 tons. Poultry feed consumption declined 1,577,300 tons. Consumption of "all other formula feed" declined 88,900 tons.

Forty-two states showed declines in formula feed consumption in 1955. The six states showing increased formula feed consumption were Alabama, Iowa, Minnesota, Missouri, New York and Tennessee. Of these six states, Alabama and Tennessee showed increased formula feed production. Production in the other four states declined.

States which showed increases in formula feed production were Alabama, Arizona, Colorado, Florida, Georgia, Idaho, Louisiana, Mississippi, Montana, Nevada, New Mexico, North Carolina, South Carolina, Tennessee, Utah and Wyoming. Formula feed production declined in the remaining 32 states.

States leading in formula feed production—all with indicated output of more than one million tons for 1955—were New York, California, Ohio, Illinois, Missouri, Pennsylvania, Texas, Tennessee, Minnesota and Indiana. States with indicated formula feed consumption of more than one million tons in 1955 were California, New York, Texas, Iowa, Pennsylvania, Missouri, Georgia, Illinois and Indiana.

Thirty-two states showed formula feed consumption figures higher than production figures. The 16 states indicated to have produced more formula feed than consumed were Alabama, California, Delaware, Illinois, Minnesota, Missouri, Nebraska, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Tennessee, Utah and Washington.

Feedstuffs' research department, directed by Walter C. Smith, calculated these estimates on the basis of a variety of data. Among the sources of information used in preparing production estimates was the American Feed Manufacturers Assn. report on total U.S. feed production. Other sources, including U.S. Bureau of Census data, were used in estimating state production totals.

Basis of Estimates

Figures on consumption of poultry feed by states have been derived statistically from data including U.S. Department of Agriculture figures on

PRUNE FEED

SAN FRANCISCO — The use of small prunes as animal feed was suggested to prune growers by Robert McArthur of the California Prune Marketing Administration. The prune industry is suffering from an oversupply and Mr. McArthur said some way to get some 18,000 to 20,000 tons out of circulation next year must be found or the situation will become worse the following year. He told the growers the best way to use small prunes was to get them into animal feed. Since less money can be obtained from animal feed than the handler's investment, he was hopeful the U.S. Department of Agriculture would be able to initiate a diversion payment program to help make up the loss incurred from selling them at feed prices.

broiler, turkey and chicken production. Dairy feed consumption figures were computed from USDA reports, including those on rations fed to milk cows. USDA information and other data on hog production and feeding practices form the basis for swine feed consumption estimates.

The "all other formula feed" consumption figures include sheep feed, beef cattle feed, horse and mule feed, pet food, feeds for fur-bearing animals and miscellaneous feeds.

"Formula feeds," as the term is used in this report, are feeds mixed specifically for certain species of animals and for certain uses. Formula feed is made according to a specified formula and to meet certain requirements of the animal for which it is formulated.

This is the fourth state-by-state report prepared and published by Feedstuffs.

MILLFEED • FEED GRAIN
FEED INGREDIENTS
What Do You Need?
—Jerry Parks
633 Board of Trade
KANSAS CITY, MISSOURI

Egg Settings Steady; Broiler Prices Dip In Delmarva Area

SALISBURY, MD. — The average price paid for broilers on the Delmarva Peninsula dropped to 16.97¢ lb. last week. A week earlier the price was 17.54¢.

Egg settings in 22 reporting states totaled 30,478,000 for the week ending Dec. 1. This was 1% less than during the previous week but 9% above the same week a year ago.

Chick placements in 22 states totaled 21,536,000, 2% more than the previous week and 6% above the same week a year ago.

According to the Maryland-Delaware Crop Reporting Service, broiler chick placements in Delmarva at 2,783,000 for the week ending Dec. 1 were 3% lower than a week earlier but 7% above the same week of last year. Both local hatching and inshipments were lower. Settings at 3,397,000 were 3% less than the previous week but were 9% above the same week of 1955.

Feed cost in the Delmarva area was $91.74 compared with $91.63 the week before. A pound of broiler meat would buy 3.7 lb. feed, compared to 3.8 a week earlier.

Payments for hatching eggs in the Delmarva area were based on prices paid f.o.b. Boston for special large brown eggs. The prices on Nov. 29 were 36-42¢ and 36-40¢ on Dec. 4.

SELLS FEED BUSINESS

WYOMING, IOWA—The feed mill and produce business formerly owned by Robert Alden here has been sold to William Boss.

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GLENWOOD FEEDING OAT MEAL
FALCON BRAND PULVERIZED WHITE OATS
STANDARD BRAND PULVERIZED WHITE OATS
DAIRY BRAND COARSE GROUND OATS
CRESCENT BRAND PULVERIZED OATS
CORN OATS PELLETS (Corn-Oats)
ENERGEE PULVERIZED OATS
MIXERS' PULVERIZED OATS
MIXERS' COARSE GROUND WHITE OATS
MIXERS' PELLETED OATS
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OAT FEED
STEAM ROLLED WHOLE BARLEY
GROUND BARLEY
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Camera Views of the Midwest Feed Production School

FEED MEN HONORED—As illustrated in the first picture, members of the 1956 production school planning committee received special recognition at the school dinner. Hugh Kelley (at the microphone), Ames (Iowa) Reliable Products Co., presented committee members with certificates of appreciation from the Midwest Feed Manufacturers Assn. for their extensive work, representing for each $1,000 or more worth of time away from their own jobs. Standing, left to right, are James McNeil, Pillsbury Mills, Inc., Minneapolis, chairman; Larry Alley, Pay Way Feed Mills, Kansas City; Forest Lipscomb, Jr., Springfield, Mo.; Lowell Judd, Albers Milling Co., Kansas City, named to head the 1957 committee; Robert Seamon, Maritime Milling Co., Buffalo; Erwin Wascher, Honeggers' & Co., Fairbury, Ill.; Joe Sloan, Cosby-Hodges Milling Co., Birmingham, Ala., and James Leker, Staley Milling Co., Kansas City. Seated are Lloyd Larson, executive vice president of the Midwest association; an entertainer at the dinner, and Maurice Johnson, Staley Milling Co., master of ceremonies. Committee members not present for the photo were O. E. Gookins, Quaker Oats Co., St. Joseph, Mo., and Charles Ward, Ralston Purina Co., Kansas City. In the second picture, H. Roe Bartle (left), mayor of Kansas City, is making Mr. McNeil (center) and George Wolff, Universal Mills, Fort Worth, honorary citizens of Kansas City and presenting them with gold keys. Mr. Wolff is president of the Midwest association.

SPECIALIZED SESSIONS—An important part of the 1956 Midwest Feed Production School, held Dec. 3-5 in Kansas City, was specialized sessions at which experts spoke and answered questions on various phases of feed manufacture. Actual equipment and machinery models were used in the discussions. Shown above are three of the several panels of feed industry and allied trade men in action. In the first picture are members of the group which discussed bin flow and proportioning and assembling—left to right, Lowell Judd, Albers Milling Co., Kansas City, chairman; Lee Chambers, Albers, Los Angeles; William Young, Richardson Scale Co., Chicago, and John Metzger, Sprout, Waldron & Co., Lakes Charles, La. Premixing and the use of drugs and other feed additives came in for attention from the group in the second picture—Robert Wornick, Chas. Pfizer & Co., Inc., Terre Haute, Ind.; Larry Alley, Pay Way Feed Mills, Kansas City, and Dr. S. F. Kern, Eli Lilly & Co., Indianapolis. Warehousing and shipping operations were covered by the three men in the third photo—Oscar Holland, Quaker Oats Co., St. Joseph, Mo.; J. D. Johnson, General Mills, Inc., Minneapolis, chairman, and C. E. Swick, Kent Feeds, Muscatine, Iowa.

LIQUID HANDLING—One entire evening session at the Midwest Feed Production School in Kansas City was devoted to the handling, application and mixing of liquid ingredients in feeds. Co-chairmen of the session were J. W. Sloan, Cosby-Hodges Milling Co., Birmingham, Ala., and Forest W. Lipscomb, Jr., Lipscomb Grain & Seed Co., Springfield, Mo. In the first photo, looking at equipment on display, are three speakers who discussed the use of phosphoric acid, fats and fish solubles. Left to right, Robert F. Bryant, Victor Chemical Works, Chicago; Richard V. Lucas, Jr., Walnut Grove Products Co., Atlantic, Iowa, and W. E. Rogerson, VyLactos Laboratories, Des Moines. In the second picture are panel members who joined in answering questions posed by some of the more than 600 feed men present for the school. Left to right, R. J. Fleming, National By-Products Co., Des Moines; Oak Smith, Wenger Mixer Mfg. Co., Sabetha, Kansas; S. J. Shartran, Fairbanks-Morse Co., Kansas City; Jack Wall, Sprout, Waldron & Co., Muncy, Pa.; A. W. Stegner, Butler Mfg. Co., Kansas City; D. R. Fischer, Monsanto Chemical Co., St. Louis, and William Carter, Buffalo (N.Y.) Meter Co.

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Broiler Trends Discussed at Missouri Poultry Convention

By THOMAS E. LETCH
Feedstuffs Editorial Staff

KANSAS CITY—A shift in the main broiler growing area from the South toward the grain belt in the 10 to 20 years was predicted at the the Missouri Poultry Improvement Assn. convention held here recently.

Alex Gordeuk, editor of Broiler Growing, Mt. Morris, Ill., made the long range of forecast. "Watch Tennessee, Kentucky, southern Indiana and Illinois in the future," he said. He told the Missourians that they probably would be on the edge of this huge broiler growing area.

Mr. Gordeuk characterized the broiler industry as dynamic. It has changed tremendously in the past 15 years and will probably change even more in the next 15 years, he said.

"One man predicted that some day broilers will be producing more meat for the people of the world than any other animal. And I don't disbelieve this statement," he said.

Broiler Industry to Expand

Chicken will be cheaper than any meat because of the efficiencies being learned by the broiler industry. Mr. Gordeuk predicted that broilers would cut into the pork business sharply. By 1960 he said the industry will be producing every size chicken, from baby broilers to heavy roasters, in vast numbers. The annual broiler crop by that year will exceed 2 billion birds, he said.

Feeding research continues at a fast pace, Mr. Gordeuk noted. "Don't be surprised to see the production of 3-lb. broilers in six weeks on 1.5 lb. feed per pound gain," he said.

Much progress can be made genetically, he indicated, saying that the breeders have really just started.

About management, Mr. Gordeuk said: "We haven't nearly taken up all the slack. There is much to be learned and applied on control of environment. As more is learned, housing may well change from present ideas." Business awareness, with closer looks at cost relationships, will be intensified, he said.

The intensification of integration was another prediction of Mr. Gordeuk. "Competition between integrated units will become severe. We may see development of production corporations which will become linked with large processing and marketing organizations."

As basic long range needs of the industry, he said that everyone connected with the industry must work toward meeting the following: (1) Cutting production and marketing costs. (2) Improving quality. (3) Expanding the market.

The trouble the broiler industry is experiencing now, he pointed out, is because production skill has outstripped marketing skill.

Quality Eggs Necessary

A quality egg production program, with producers on a sound commercial basis, was held out as the hope for the survival of Missouri's egg business by Pat M. Waters, General Mills, Inc., Kansas City.

Since 1930, Missouri's egg flock has gone from nearly 28 million birds to less than 14 million, with the number dropping a million a year since 1950, Mr. Waters said.

People have gotten rid of their layers because they haven't found the business profitable. And that, he said, is because they haven't been producing a quality egg that will bring a premium from the consumer.

"Stores want to buy quality eggs," Mr. Waters said. "They want eggs uniform in size, color and, of course, they must be wholesome. And you can't get that kind of egg with haphazard feeding, with different breeds in a flock, and without proper handling all the way along the line."

It takes a 1,000-bird flock as a minimum to permit proper handling at a profit, Mr. Waters pointed out.

Mr. Waters indicated that it would take about 500,000 birds in a given area on a uniform quality program of feeding, management and handling to capture a market the size of Kansas City. He said that stores and consumers would not hesitate to pay a premium for the quality eggs, if they could be assured of that quality year in and year out.

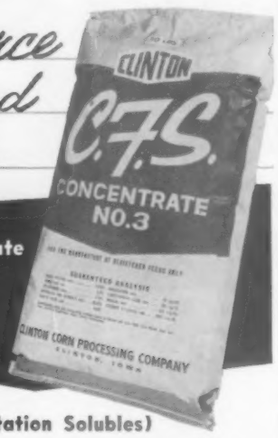
Once the uniform quality egg is being produced in large numbers, he said, the housewife can then be educated on what a quality egg is and she will buy by brand as she does practically every other product in today's grocery store.

Failure to adopt such a quality program will, Mr. Waters predicted, result in a further decline of the egg business in Missouri.

BUYS FEED STORE

SHELTON, WASH.—Fred Stroh, owner of a Gig Harbor, Wash., feed and farm supply store, recently bought the Wagener Feed Company here. H. A. Bezley will continue as manager.

Lower cost source of unidentified growth factors



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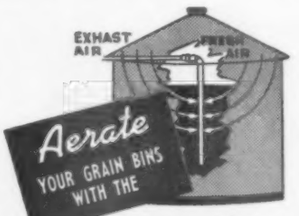

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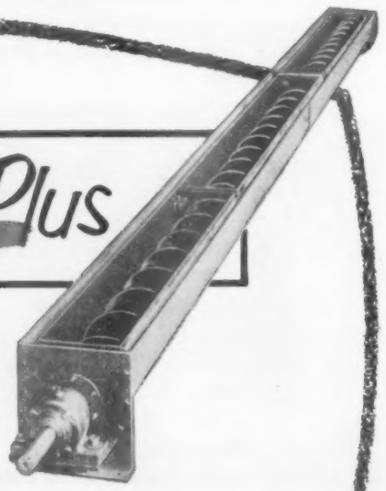

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To her chickens, she's an egg-taker.
To the dog, she's food and drink.
To the storekeeper, she's a customer.
To her preacher, she's a child of God.
To the artist, her face is stamped with all humanity.
To the unobserving, she's a face in the crowd.
To her mother, she's still a child.
To her husband, she's a reason for living.

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AMINO ACIDS IN POULTRY NUTRITION

● By Dr. F. H. Kratzer
University of California

EDITOR'S NOTE: Along with the increased use of high energy feeds, more attention has been given to amino acid requirements of poultry and the supplying of these needs in feeds. In the accompanying article, Dr. F. H. Kratzer of the department of poultry husbandry, University of California, Davis, reviews recent work in the field of amino acids in poultry nutrition. He deals primarily with amino acids which are more likely to be deficient in practical rations. This article is the text of a paper presented at the Cornell Nutrition Conference.

The problem of meeting the protein needs of poultry is largely one of supplying adequate amounts of the essential amino acids, although in feeding certain proteins there are other important considerations which are unrelated to their amino acid composition. For example, in soybeans we have a problem of destroying growth inhibitors; in cottonseed meal we are concerned with gossypol which affects growth of young birds and the quality of eggs from laying hens; and, with feedstuffs containing keratin proteins, digestibility is a serious problem which influences feeding value. Basically, however, the specific amino acid requirements, factors which influence them, and the adequacy of protein sources in meeting the requirements are of prime importance in poultry feeding.

Since the subject of amino acids was reviewed at the Cornell conference in 1953, and the NRC has published recommended requirements for them, I wish to review some of the more recent work in this field, particularly with reference to amino acids which are more likely to be deficient in practical rations.

Lysine: Lysine has been known for years to be important for the optimum growth of chicks. Recent studies at Cornell (1) have shown that with the more rapid growth obtained in recent years the requirement is somewhat higher (1.1%) than it was thought previously. A relationship of energy to the requirement for lysine was demonstrated quite clearly by the work of Williams and Grau (2). A ration which contained a sub-optimal level of lysine gave improved chick growth when cellulose was added to it. This effect is best explained by assuming that the addition of cellulose reduced the available energy content of the ration which forced the bird to consume more of the feed to meet its energy needs. The increased feed consumption resulted in an increase in the lysine consumption and caused improved growth. The same effect has been demonstrated with rations suboptimal in total protein by several workers. This is probably a general effect and is not specifically related to lysine.

Lysine is also critical in rations for turkeys. In colored poults and chickens[3], a deficiency of lysine causes a lack of feather pigment formation, in addition to causing retarded growth. The requirement for pigment formation is very specific, as is the requirement for growth, and closely related compounds, including the D-isomer (4), are not effective in replacing L-lysine. The function of lysine in forming melanin is not known, except that a deficiency of lysine causes a reduction of tyrosinase in the feather pulp. The requirement for lysine varies with the level of protein in the ration, but is not directly proportional to it.

The need for lysine for poults during the first four weeks (5) is about 1.3 to 1.4% or about 4.7% of the protein. Beyond four weeks of age, the lysine requirement drops to about 4% of the protein and remains proportional to the protein level throughout the growing period. Further evidence for the fact that the lysine requirement decreases as poults grow older is the fact that a starter ration which is marginal in lysine will cause the development of white bar in the first two weeks of age while pigmentation will be normal when the poults are held on the same ration for an additional four weeks.

With the high requirement for lysine in rations for both chicks and poults, it is important to consider sources of lysine. The poultry industry is fortunate that soybean oil meal is an exceptionally good source of lysine. Animal products, in general, are also good sources of lysine, although this amino acid is one of the most susceptible to destruction in processing. Synthetic lysine is a possible supplement for the future if it can be priced to compete with natural sources. Blood meal has been reported to be a rich source of lysine but there has been very little information about the availability of the lysine for poultry.

We have made some comparisons of the availability of lysine in blood meal for chicks and poults. Samples of spray-dried blood and the usual vat-dried blood meal were assayed for lysine by a microbiological method, by chick assay and by poult assay (Table 1). The blood samples were substituted for sesame seed oil meal

Table 1—Lysine Content of Blood Meal

Source	Crude protein	Lysine, determined by Microbiol. assay	Chick assay	Poult assay
	%	%	%	%
Spray dry No. 1	88	11.9	10.1	9.0
Spray dry No. 2	92	16.9	11.5	12.5
Spray dry No. 3	96	16.4	11.8	11.7
Fertilizer meal, No. 1	77	11.0	7.0	6.6
Fertilizer meal, No. 2	78	12.6	8.3	6.2

(Continued on page 16)

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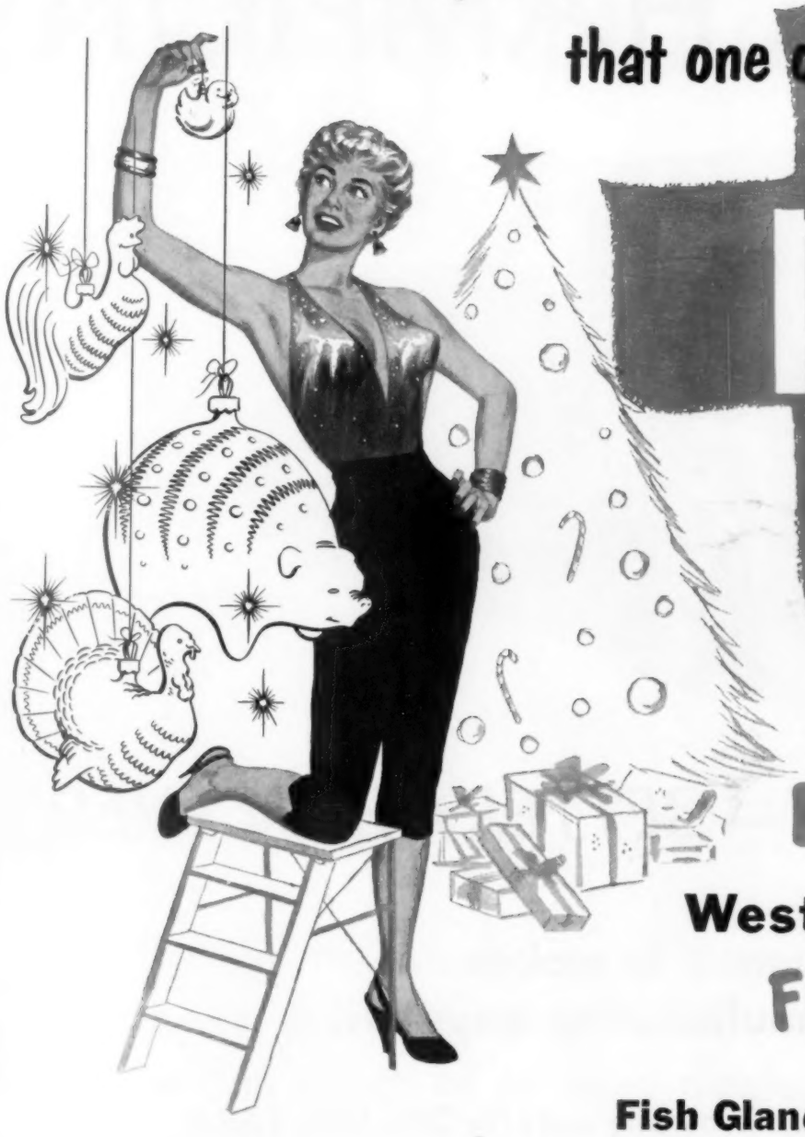

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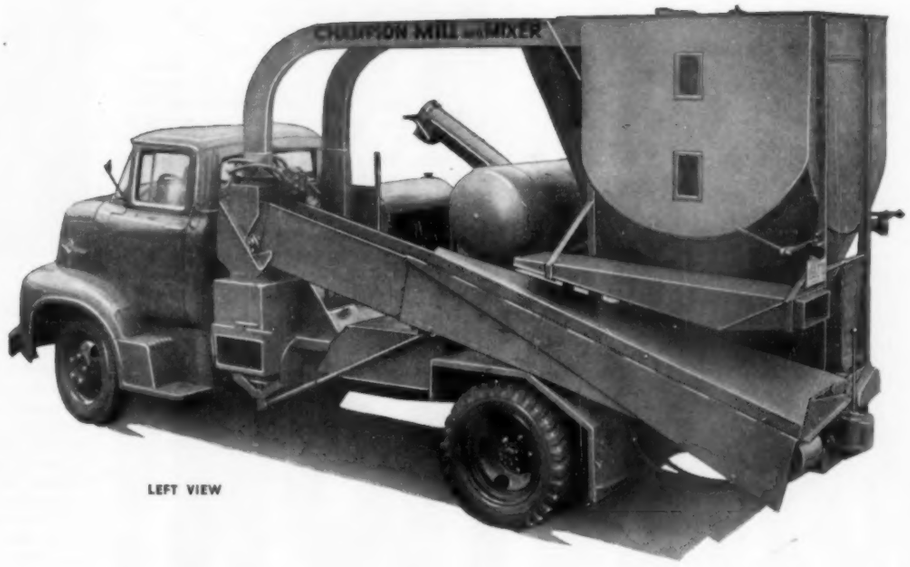

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in a lysine deficient ration and the growth response compared with that given by synthetic lysine. The spray-dried blood meal contained from 11.9 to 16.9% lysine which was approximately 75% available for chicks and poults. The meal produced for fertilizer use was lower in lysine which was, in turn, somewhat less available to chicks and poults. These results indicate that spray-dried blood meal is an excellent source of lysine for poultry rations. If we assume that it contains 10% lysine, the addition of 1% to a ration will increase the lysine by 0.1% and may be very important in preventing a borderline deficiency. Blood meal has some amino imbalances which make it advisable to use it indiscriminately as a protein supplement.

Methionine: Methionine has been studied quite extensively in both purified and practical rations with somewhat variable results. The recent work of Baldini and Rosenberg (6) showed that the methionine requirement increased with the energy content of the ration and that the results in the literature were in closer agreement when differences in energy were considered. This effect is similar to that reported for lysine (2) and may be explained by a reduction in feed consumption by the increased energy which means that the lesser amount of feed must contain more methionine to meet the needs. This relationship is probably applicable to other amino acids as well and is important to consider when rations of higher energy than usual are to be used.

Baldini et al (7) and Fisher et al (8) have reported work indicating that the protein requirement of poults may be met by as low as 20% protein if lysine and methionine are supplied adequately. Jersey Buff poults were used by both groups of workers. Klain et al (9) were unable to obtain maximum growth with a ration containing 21.8% protein supplemented with methionine and lysine with Bronze poults, and other workers have found the protein requirement to be 26-28% with rations which were presumed to be adequate in lysine and methionine. It would be interesting to determine whether a bread difference exists between Jersey Buff and Bronze poults.

Donovan et al (10) obtained slightly increased growth and feed efficiency when methionine was added to turkey rations for the entire growth period when an all-mash system of feeding was used. There was little diffeernce when free-choice feeding was employed, probably due to a greater consumption mash in relation to grain. Pepper and Slinger (11) observed an increase in growth of poults by the addition of methionine to a basal ration containing 0.43% methionine for 0-8 weeks of age. There was no growth increase after this period and the results indicated that the methionine requirement as percent of protein was relatively constant (1.47-1.48%) in the later growth period. These results are quite similar to those reported for lysine (5). Almquist (12) has reported results which indicate that the methionine requirement of turkeys as percent of protein increased with age in the later growing period.

Gordon and Sizer (13) have reported that sulfate may be used to satisfy part of the sulfur requirement of chickens. It presumably spares the breakdown of methionine and cystine to inorganic sulfate. Machlin et al (14) have shown that 10 and 12% of methionine and cystine respectively are converted to sulfate after injecting the amino acids in incubating eggs.

Tryptophan: The importance of tryptophan as a precursor of niacin has been recognized for some time, but the quantitative importance of this relationship was not known. Fisher et al (15) reported that in the chick, tryptophan could spare niacin but that niacin could not spare the need for tryptophan. Patterson et al (16) have shown that the niacin requirement was dependent upon the tryptophan content and varied from 8-9 mg. to 13-15 mg. per pound of the ration as the tryptophan varied from 0.24 to 0.14%. The tryptophan requirement was increased as the niacin content of the

(Continued on page 78)

Billie G. Powell

APPOINTED—The Nopco Chemical Co., Harrison, N.J., has announced the appointment of Billie G. Powell as district sales manager for the agricultural department. Mr. Powell will serve the South Dakota, Iowa, Nebraska, Kansas and Missouri area. Mr. Powell has a farm background, specializing in feed and nutrition. During World War II he served as a captain in the Army Quartermaster Corps and was active in food and feedstuffs procurement. Before joining Nopco he was with the agricultural sales division of Chas. Pfizer & Co., Inc. Mr. Powell will make Des Moines, Iowa, his home.

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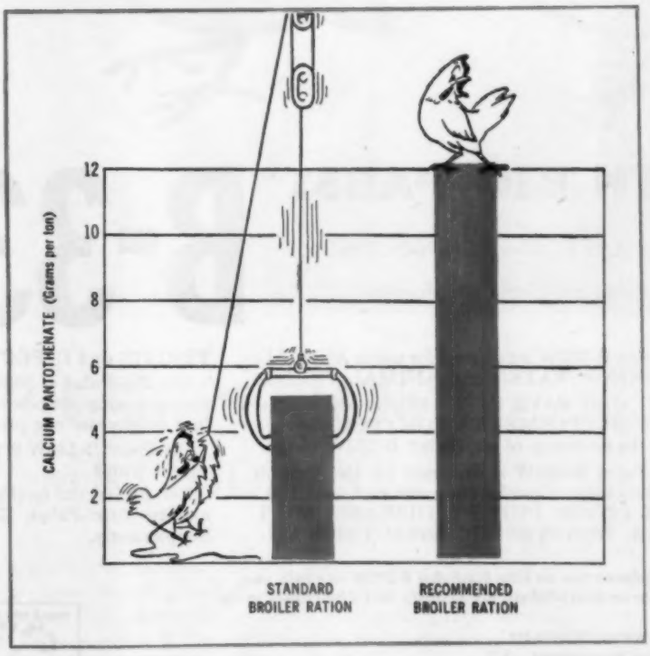

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Pelleting Research at Washington State College

Poultry Studies Indicate Favorable Effect of Pelleting Is Caused by Chemical or Nutritional Change as Well as Increased Density of Feed

By Dr. Leo S. Jensen

EDITOR'S NOTE: There has been a good deal of interest in recent pelleting research at the State College of Washington. Studies with chicks show that the favorable effect of pelleting the ration cannot be explained entirely upon a physical or density basis. A nutritional or chemical change also is indicated by the research findings. In the accompanying article, Dr. Jensen, of the department of poultry science at Washington State, outlines the Washington State work, including studies of the effects of pelleting individual ingredients as well as the whole ration. These studies indicate that a chemical or nutritional change occurs in the corn part of a ration which causes improved growth rate and feed efficiency. This article is the abstract of a talk by Dr. Jensen at the Washington Animal Industry Conference.

The process of compressing poultry feeds into pellets was started more than 20 years ago. Today it is estimated that 60% or more of the manufactured poultry feeds are fed in the form of pellets or crumbles. Experiments conduc'ed to compare pelleted and unpelleted feeds for chicks and poults have, in general, shown a favorable response to pelleting. A faster growth rate is obtained and feed efficiency is improved.

We, at the State College of Washington, have undertaken a research project to study the effects of pelleting on feeds. We are particularly interested in determining why pelleting gives a response in growth and feed efficiency. It has been suggested that the increased density of pelleted feed is the primary reason for the favorable response. It is believed that the feed intake of chicks is stimulated by increasing the density of the feed. An experiment conducted many years ago at the University of Illinois demonstrated that birds fed pellets can consume their feed in much shorter time than birds fed mash. In this experiment, hens were restricted in feeding time to certain periods during each day. Hens fed for only 20 minutes, two times a day, were able to maintain their weight and continue to lay if given pellets, but not if given the same feed in mash form. This clearly demonstrated that the hens fed pellets could eat a greater quantity of feed in a much shorter time.

We conducted experiments to determine whether or not the growth response could be explained by an increased density of the feed. A corn-soy type of ration was used in these studies. The feed was pelleted by passing it through a die having a 3/32 in. diameter. Some of the pellets were ground so that they were similar in consistency and density to the original mash. The results of two experiments are shown in Table 1. In both experiments a growth response was obtained to feeding whole pellets and also, surprising to us, to ground pellets. In Experiment 2 a growth response as well as a feed efficiency effect was obtained by feeding either ground pellets, crumbles or pellets.

Nutritional or Chemical Change

These results show that the favorable effect of pelleting cannot be explained entirely upon a physical or density basis. A nutritional or chemical change is indicated.

The results shown in Experiment 2 indicate, however, that physical form cannot be eliminated completely as a factor in improving growth and feed efficiency. Several other experiments conducted here have shown that whole pellets give somewhat greater response than ground pellets. Therefore, it would appear that there are two processes contributing to the improved performance with whole pellets: (1) A physical or form effect, and (2) a nutritional or chemical effect.

To investigate further the nutri-

TABLE 1. Effect of Form of Feed on Performance of Chicks.

	Average weight 4 weeks gms.	Gms. feed/ gm. gain	Density
Experiment 1—			
Mash	377	1.86	.67
Ground pellets	396	1.82	.66
Pellets	397	1.91	.64
Experiment 2—			
Mash	348	2.14	..
Ground pellets	366	1.90	..
Crumbles	372	1.92	..
Pellets	378	2.05	..

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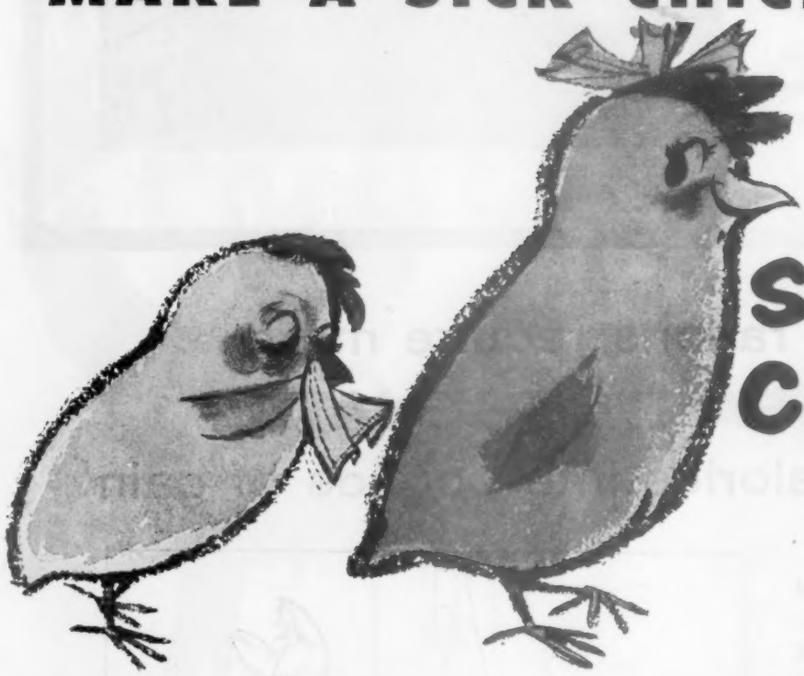

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TABLE 2. Composition of Chick Ration.

Ingredient—	%
Ground corn	55.0
Soybean oil meal	20.0
Fish meal, herring	10.0
Oat hulls	3.75
Alfalfa meal	2.5
Distillers solubles	3.0
Vigofac	0.5
Bone meal	2.0
Ground limestone	0.25
Animal tallow	2.0

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tional or chemical change, an experiment was designed to study the effect of pelleting individual ingredients included in a chick ration. The ration shown in Table 2 was used in this study. Oat hulls were included because previous workers had shown that level of fiber in a ration apparently affected the response to pelleting. The major ingredients in the ration consisting of corn, soybean oil meal and oat hulls were individually pelleted, reground to their original consistency and mixed with the other unpelleted ingredients. Various combinations of these individually pelleted ingredients were used also.

Change in the Corn

The results of this study are shown in Table 3. Again, a growth response was obtained with ground pellets over that of the unpelleted mash. A greater response was obtained with the whole pellets. When the individual ingredients were pelleted, reground and included in the mash ration, only the pelleted corn gave a growth stimulation. Under these conditions, therefore, it appeared that a chemical or nutritional change was occurring in the corn fraction of the ration which was causing an improvement in growth rate and feed efficiency.

TABLE 3. Effect on Chick Growth of Pelleting Individual Ingredients.

Ingredients pelleted	Aver. weight 25 days gms.
None	276
All (whole)	315
All (ground)	296
Soybean oil meal (SOM)	268
Oat hulls (OH)	271
SOM plus OH	276
Corn	284
Corn plus SOM	298
Corn plus OH	294
Corn plus SOM plus OH	296

A further experiment was conducted to study the effect of various treatments of corn in an attempt to simulate the pelleting process under laboratory conditions. The corn was steamed, water-soaked for 24 hours, and autoclaved for 20 min. at 15 lb. pressure. The corn treated by these methods was then dried in an oven and included in a chick ration. The

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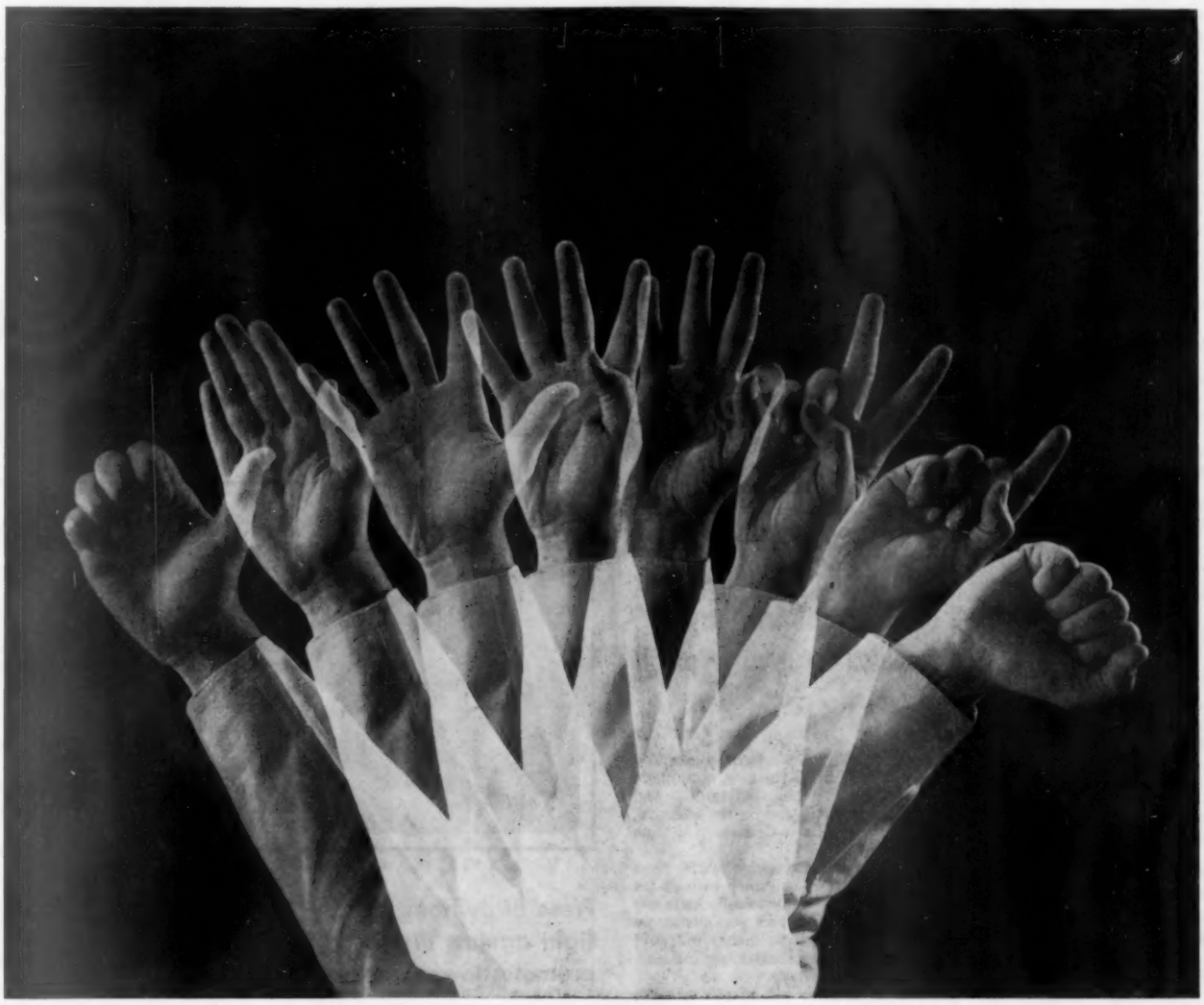

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TABLE 4. Effect of Various Treatments of Corn on Chick Performance.

Treatment—	Av. weight 25 days Gms.	Gms. feed/ gm. gain
Mash	266	2.08
Ground pellets	336	1.73
Pelleted corn	311	1.79
Corn/steamed	244	2.23
Corn/water soaked	264	2.07
Corn/autoclaved	267	2.18

results are shown in Table 4. Only in the case of the pelleted corn was a growth response obtained. None of the other treatments were effective. Under these conditions, therefore, we were unable to simulate the conditions involved in the pelleting process.

Effect of Fat Studied

In an earlier study with turkey poults, results indicated that the response to pelleting was reduced in the presence of animal fat. It was considered possible that fat added to feeds before pelleting would cause the feed to go through the die so fast that the full effect of the pelleting process would not be realized. To study the effect of fat on the pelleting response, two experiments, one with chicks and one with poults, were conducted. Levels of 2½ and 5% animal tallow were included in the rations. The fat was added before and after pelleting. In all cases, the pellets were reground to a consistency similar to the original mash. The results of these studies are shown in Table 5.

The nutritional or chemical change effected by pelleting was not altered by the addition of animal fat to the ration. In the experiment with turkeys, slightly better growth was obtained in each case where tallow was added after pelleting as compared to the growth when tallow was added before pelleting. However, this difference was not statistically significant. In the experiment with chicks, no difference in the response to pelleting was obtained whether the fat was added before or after the pelleting process. The fact that the response was not altered by animal fat suggests that the pelleting process is not simply altering the ingredients so that more energy is available to the animal.

An experiment was also conducted to study the effect of protein level on the response to pelleting. Rations containing 20, 22 and 24% protein were compared. The calorie-protein ratio was kept constant as the protein was increased in the ration. An increased growth rate and improved feed efficiency were obtained by pelleting all the rations containing the different protein levels. There was no indication that the response to pelleting was decreased by increasing the protein in the ration. These results suggest that the nutritional or chemical change in feed ingredients brought about by the pelleting process is apparently not a matter of altering the ingredients so that more protein is available to the animal.

TABLE 5. Studies on the Interrelationship of Animal Fat and Pelleting.

Treatment	Fat level %	Av. wt. at 4 weeks Turkeys Gms.	Chicks Gms.
Mash	0	577	367
Ground pellets	0	615	385
Mash	2.5	573	354
Ground pellets BP	2.5	584	387
Ground pellets AP	2.5	610	395
Mash	5.0	574	369
Ground pellets BP	5.0	615	383
Ground pellets AP	5.0	629	382

Longer Period

All of the experiments reported thus far were conducted for a period of four weeks or less. In order to study the effect of pelleting over a longer period of time, a study was conducted with chicks kept on the floor for a period of nine weeks. A corn-soy ration containing 2.5% animal tallow was used in the study. The results are shown in Table 6.

A growth response was obtained both with ground pellets and whole pellets over that of the unpelleted mash. The birds receiving ground pellets were almost ¼ lb. heavier than the birds receiving mash. The birds receiving the whole pellets were over ¼ lb. heavier. There was also an indication of an improvement in feed efficiency with both ground pellets and mash. However, these results are complicated by feed wastage which was a problem in this experiment.

Another experiment conducted with chicks raised to broiler age was conducted by Berg at Western Washington Experiment Station. In his study, the chicks were fed an unpelleted feed for the first four weeks. At the end of that time, the chicks were divided in two, and one group was fed an unpelleted mash containing 6% added animal fat, whereas the other group received the same feed in the pelleted form. The experiment was terminated at the end of eight weeks. The results showed no difference in the rate of gain during the four weeks between the two groups. Therefore, under these conditions, no response to pelleting was obtained. These results, of course, are not comparable to those obtained at the Pullman Experiment Station because all of the studies conducted here were started with day-old chicks. However, I understand that certain feed companies have at times obtained negative results with pelleting.

TABLE 6. Influence of Pelleting on Growth of Broilers.

Treatment—	Av. weight 9 weeks Gms.	Grams feed/ gram gain
Mash	1038	2.82
Ground pellets	1144	2.72
Pellets	1203	2.30

The evidence that a nutritional change is brought about by the pelleting process is of considerable interest. One wonders what type of change is occurring to bring about such profound biological effects. It is possible that the total digestibility of a ration is improved by pelleting. This would explain the improvement in feed efficiency but would not necessarily explain the improvement in growth. One very plausible explanation is that certain unknown growth inhibitors present in certain feed ingredients are being destroyed by the heat and pressure involved in the pelleting process. Poultry nutrition-

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furazolidone (nf-180)... *the growing trend in turkey*

Germ-starving nf-180 in turkey helps you clinch next year's

Here's how this lifesaving drug turns sick calls into sales calls... helps your customers *"feed away"* troubles for greater profit per bird

nf-180 is today's fastest-growing turkey disease fighter. It's the new, man-made germ killer that has sold itself — and the feeds it fortifies — on the effective, safe, sure results it delivers . . . time after time.

That's one reason why nf-180 pays off It helps keep salesmen primed for promotion and ready to sell. As many a feedman knows, it's a real customer-getter—and contract-clincher, too. And everyone is interested in getting new customers these days.

These feedmen put nf-180 to work even before a turkey raiser is in trouble. They "feed away" disease problems and let the nf-180 results speak for themselves.

nf-180 turns sick calls into profit-making sales calls . . . gets a prospect out of trouble and into your program.

Result: one more satisfied user . . . a real believer in your nf-180-fortified feeds.

Treat the first five—keep the rest alive

Here's new protection . . . new emergency first aid for ailing turkeys. It's the new nf-180 tablets, now prepared in the handy, pocket-sized containers.

These are pocket-sized salesmen for your nf-180-fortified feeds . . . giant-sized protection for flockowners who know the unmatched disease-fighting power of nf-180.

Turkey raisers use nf-180 tablets at the first sign of trouble . . . get the jump on disease before it strikes the whole flock . . . follow up treatment with an nf-180-fortified feed to clean up most of their flock troubles.

Frees birds from the fight against disease; promotes lower-cost gains

Because nf-180's germ-killing is fast, safe, sure, it strengthens birds under stress . . . frees birds from the fight and fury of a wide range of disease organisms It helps the good nutrition in your turkey feeds restore flock vigor in a hurry Almost immediately, birds start producing faster, cheaper gains.

nf-180 does not merely inhibit or suppress germ growth. It kills germs. And dead germs don't breed resistant strains to fight back. That's why the same low levels of nf-180 in your turkey feeds maintain their disease-fighting effectiveness, year after year.

Protects turkeys from many disease problems

nf-180 has a rifle-like action against costly turkey diseases. In addition, it is effective against many non-specific infections that creep up on a flock and rob profits.

These secondary invaders can be associated with some 30 or more recognized stress conditions that so often trigger troubles.

In addition to preventing disease, a turkey starter medicated with nf-180 gets poults off to a fast start . . . improves feed conversion . . . promotes rapid early growth and development.

The 2-pound-per-ton level of nf-180 in a turkey feed can be used to make up the bulk of your disease-fighting medication. This level will prevent losses from blackhead, hexamatiasis, typhoid, paratyphoid, pullorum and synovitis. It also will prevent most occurrences of diseases such as CRD (air sac), non-specific enteritis (mud fever or blue comb) and ulcerative enteritis (quail disease).

Ever see a germ off feed?
Normal germs...
Normal bacteria, when unhampered by drugs, grow in an orderly pattern. They thrive and multiply such as these common disease-causing organisms.
get sick...
When treated with the nitrofurans, germs get sick, go "off feed." Some die immediately. Others may become distorted, swell up and start to die.
and die.
But it's a losing battle, the end of the road for profit-robbing disease organisms. Unable to feed or multiply, germs starve to death and disintegrate.
Actual microscopic photographs before and after treatment with nitrofurans.

ists are already confronted with a number of growth inhibitors in various feed ingredients. Examples are the trypsin inhibitor in raw soybeans, gossypol in cottonseed meal, an unknown inhibitor in linseed meal, saponins in alfalfa and others.

If the favorable response to pelleting is explained on the basis of destruction of a growth inhibitor, then one might anticipate rather large variations in the response obtained to pelleting. It would be expected that the inhibitor content of corn and other ingredients would vary considerably among samples. It is well known that the saponin content of dehydrated alfalfa meals varies considerably. One might also expect differences in the degree of destruction of an inhibitor obtained by different pelleting equipment and operators. Perhaps the diameter of the die, the speed of pelleting, the amount of steam used, and so forth would affect the degree of destruction.

New Owner

COLUSA, CAL. — John J. Boles, owner and operator of Boles Feed & Seed, Colusa, recently took over the grain brokerage of E. P. McNeal Co.

Ed Lange, who died recently, had operated the firm, one of the oldest in the Sacramento Valley. It was founded by the late E. P. McNeal.

Mr. Boles, who has operated his feed and seed store in Colusa for 11 years, bought out the McNeal feed and grain over a year ago. He plans to expand his new grain business at his Fremont and Seventh St. store in Colusa.

DAVID PLATT DIES

MANASQUAN, N.J. — David A. Platt, who formerly operated the Platt Corp. in Irvington, a wholesale hay, grain and feed business, died Nov. 25 at his home here of a heart attack. He was 69. Mr. Platt retired in 1950.

CONVENTION CALENDAR

Jan. 7-8 — Kansas Formula Feed Conference, Kansas State College, Manhattan; chm., F. W. Atkeson, head of department of dairy husbandry, Kansas State College, Manhattan.

Jan. 8-10 — National Turkey Federation, Cincinnati, Ohio; exec. sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 11-12—Kansas Seed Dealers Assn.; Hotel Broadview, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

Jan. 13-15—New Mexico Grain & Feed Dealers Assn.; Hilton Hotel, Albuquerque, N.M.; exec. sec., H. B. Hening, P.O. Box 616, Albuquerque, N.M.

Jan. 14-15—Northwest Retail Feed Assn.; Hotel Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis 15, Minn.

Jan. 14-16—Conference on Processing of Cottonseed Meal as Related to Its Nutritive Value; Southern Utilization Research Branch, U.S. Department of Agriculture, 1100 Robert E. Lee Blvd., New Orleans, La.; chm., Dr. A. M. Altschul, Southern Utilization Research Branch, 1100 Robert E. Lee Blvd., New Orleans 19, La.

Jan. 17-18—Arkansas Feed Manufacturers Assn., Marion Hotel, Little Rock, Ark.; sec., T. E. Mosley, P.O. Box 149, Little Rock, Ark.

Jan. 20-22—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 22-23—North Dakota Poultry Industries Convention; Elks Club, Fargo, N.D.; Irving J. Mork, North Dakota Agricultural College, State College Station, Fargo, N.D.

Jan. 23-24 — Massachusetts Dairy Farmers Seminar; University of Massachusetts, Amherst, Mass.

Jan. 24-26—Boston Poultry Show and New England Poultrymen's Conference; Mechanics Bldg., Boston; chm., Dr. Alfred Van Wagenen, Northeastern Poultry Producers Council, 10 Rutgers Place, Trenton, N.J.

Jan. 28-30 — Southeastern Poultry & Egg Assn.; Dinkler-Plaza Hotel, Atlanta; exec. sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Jan. 30-Feb. 2—American Dehydrators Assn., Edgewater Gulf Hotel, Edgewater Park, Miss.; exec. vice pres., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City, Mo.

Jan. 31-Feb. 1—University of New Hampshire Poultry Health Conference; University of New Hampshire, Durham, N.H.; chm., Richard Warren, extension poultryman.

Jan. 31-Feb. 1—University of New Hampshire Poultry Health Conference; University of New Hampshire, Durham, N.H.; chm., Prof. W. C. Skoglund, Poultry Dept.

Feb. 4-6—Assn. of Southern Agricultural Workers, Birmingham, Ala.

Feb. 5-6—Hoosier Turkey Trot; Purdue University; sec., David D. Jackson, Indiana State Poultry Assn., Turkey Dept., Poultry Bldg., Purdue University, Lafayette, Ind.

Feb. 7-8—Oregon Animal Industry Conference; Oregon State College, Corvallis; chm., Dr. J. R. Parker.

Feb. 10-12—Wyoming Grain, Feed & Seed Dealers Assn.; Casper; sec., Everett L. Berry, P.O. Box 118, Sheridan, Wyo.

Feb. 14-15 — Washington State Feed Assn.; Olympic Hotel, Seattle; sec., J. G. Wilson, 814 Second Ave. Bldg, Seattle 4, Wash.

Feb. 14-15 — Utah Feed Manufac-

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Feedmen profit when growers feed away troubles with germ-starving nf-180

Furazolidone (nf-180) attacks germs in a safe but revolutionary way. It upsets disease germs' nutritional balance . . . forces germs to starve themselves to death. That's one reason why turkey raisers are discovering unmatched effectiveness in nf-180.

Here's how the disease prevention and treatment benefits add up:

Feedmen profit when dealers and turkey growers make money. They like the assurance that when a grower is in trouble, they have a ready answer available in nf-180-fortified feeds and nf-180 tablets.

Dealers like the flexibility and wide application of nf-180-fortified turkey feeds. They can recommend such feeds for a wide range of problems . . . confident that it will quickly knock out troubles and help their customers make more profits.

Turkey raisers soon discover that nf-180 feeds away their troubles. In addition, it heads off slumps . . . gets birds back to full feed intake in a hurry.

If you are not making an nf-180-fortified feed now, you won't want to start another turkey-raising season without this powerful disease fighter on your team.

Furazolidone (nf-180) can put new "sizzle" in your sales talks and a new "punch" in your feed promotions. When a grower's in trouble, nf-180 gives you a real opportunity for switching him to your feeding program. And nf-180 can keep your regular customers out of trouble, too.

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Ask any salesman of an nf-180-fortified turkey feed. He'll tell you that nf-180 puts a sales-clinching punch in his sales pitch.

Manufacturers of nf-180-fortified feeds say there's nothing like nf-180 to steam up a sales staff. It often supplies the added zing they need to close a turkey contract and clinch a sale.

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You are probably already using nf-180, but take a tip from other feedmen. Re-evaluate your formulas and feeding programs with the idea of benefiting even more from nf-180 next year. Take complete advantage of nf-180's disease-fighting, profit-protecting abilities.

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turers & Dealers Assn.; Brigham Young University, Provo, Utah; sec.-treas., Dr. Lawrence Morris, Animal Husbandry Dept.

Feb. 15-17—Institute of American Poultry Industries Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; pres., Cliff D. Carpenter, 221 North LaSalle St., Chicago 1, Ill.

Feb. 17-19 — Midwest Feed Manufacturers Assn., Broadmoor Hotel, Colorado Springs, Colo.; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Feb. 18 — New Mexico Feeders Day; New Mexico A&M College, State College, N.M.; chm., J. H. Knox, animal husbandry department.

Feb. 19-20 — Virginia Polytechnic Institute Nutrition School for Feed Men; Hotel Roanoke, Roanoke, Va.; chm., Paul M. Reaves, dept. of dairy science, VPI, Blacksburg, Va.

Feb. 24-26—Ohio Grain & Feed Dealers Assn.; Neil House Hotel, Columbus, Ohio; sec., G. E. O'Brien, Ohio St., Greenville, Ohio.

Feb. 24-26—Colorado Grain, Milling & Feed Dealers Assn.; Denver, Colo.; sec., R. B. Kelly, 714 Cooper Bldg., Denver 2, Colo.

March 13—Distillers Feed Conference; Sheraton-Gibson Hotel, Cincinnati, Ohio; exec. director, Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

March 13-17 — Grain Processing Machinery Manufacturers Assn.; Edgewater Gulf Hotel, Edgewater Park, Mississippi; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

March 14-17 — Pacific Dairy & Poultry Assn.; Ambassador Hotel, Los Angeles; assn. office, 1304 E. Seventh St., Los Angeles 21, Cal.

March 14-15—Oregon Feed & Seed Dealers Assn., Multnomah Hotel, Portland; mgr., Huss Hayes, Lewis Bldg., Portland 4, Ore.

March 17-18—Quad-State Convention; Martin Hotel, Sioux City, Iowa; sec., Don Suttie, Sioux City Grain, Feed & Seed Assn., Box 341, Sioux City.

March 21-22 — Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm. Dr. G. Lynn Romoser, Department of Poultry Husbandry, University of Maryland, College Park, Md.

April 4-6—Animal Health Institute, annual meeting; Greenbrier, White Sulphur Springs, W. Va.

April 10-11—Texas Feed Manufacturers Assn.; Gunter Hotel, San Antonio, Texas; sec., Ben E. Schmitt, 528 Bewley Bldg., Ft. Worth, Texas.

April 12-13—Texas Grain & Feed Dealers Assn.; Gunter Hotel, San Antonio, Texas; sec., Ben Ferguson, 614 Meacham Bldg., Ft. Worth 2, Texas.

April 25-27—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 26—Indiana Cattle Feeders Day; Purdue University, Lafayette, Ind.; chm. W. M. Beeson, Department of Animal Husbandry, Purdue University, Lafayette, Ind.

April 26-May 1—National Fisheries Institute; Edgewater Beach Hotel, Chicago; Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 1-3 — American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec.-treas., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 19-20 — Missouri Grain, Feed & Seed Assn., Hotel Connor, Joplin, Mo.; sec., D. A. Meinershagen, Eagle Mill & Elevator, Higginsville, Mo.

May 20-21 — National Cottonseed Products Assn.; Shoreham Hotel, Washington, D.C.; sec., John F. Moloney, 19 S. Cleveland St., Memphis 4, Tenn.

June 9-11—Indiana Grain & Feed Dealers Assn.; French Lick-Sheraton Hotel, French Lick, Ind.; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

June 10-11—Eastern Federation of Feed Merchants; Hotel Commodore, New York; exec. dir., Austin W. Carpenter, Sherburne, N.Y.

June 11-12 — Montana Nutrition Conference; Montana State College, Bozeman; chm., O. O. Thomas, Animal Industry Department.

June 17-18—Georgia Feed & Poultry Conference; Dinkler Plaza Hotel, Atlanta; sec., Will L. Kinard, 3240 Peachtree Road Bldg., Room 210, Atlanta 5, Georgia.

June 17-19—Association of Southern Feed & Fertilizer Control Officials; Dinkler-Tutwiler Hotel, Birmingham, Ala.; sec., Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky.

July 16-19—American Poultry & Hatchery Federation; Municipal Auditorium, Kansas City; sec., Don M. Turnbull, 521 E. 63rd St., Kansas City 10, Mo.

Sept. 11-12—Michigan State Hatchery Conference; Michigan State University, East Lansing, Mich.; chm., Harry E. Hathaway, Michigan State Poultry Improvement Assn., East Lansing, Mich.

Sept. 11-13 — American Pet Food Manufacturers; Drake Hotel, Chicago; sec., R. L. Kathe, APFM Division of American Feed Manufacturers Assn., 53 W. Jackson Blvd., Chicago 4, Ill.

Oct. 3-4—Texas Nutrition Conference; Texas A&M College, College Station; chm., Dr. J. R. Couch, poultry science department.

Oct. 7-9 — Northeastern Poultry Producers Council Poultry Exposition and Convention; Farm Show Bldg., Harrisburg, Pa.; chm., Alfred Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

Oct. 14-16—Virginia State Poultry Federation; Hotel Roanoke, Roanoke, Vt.; chm., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Oct. 16-17—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; exec. sec., L. E. Bopst, Room 036 New Chemistry Bldg., University of Maryland, College Park, Md.

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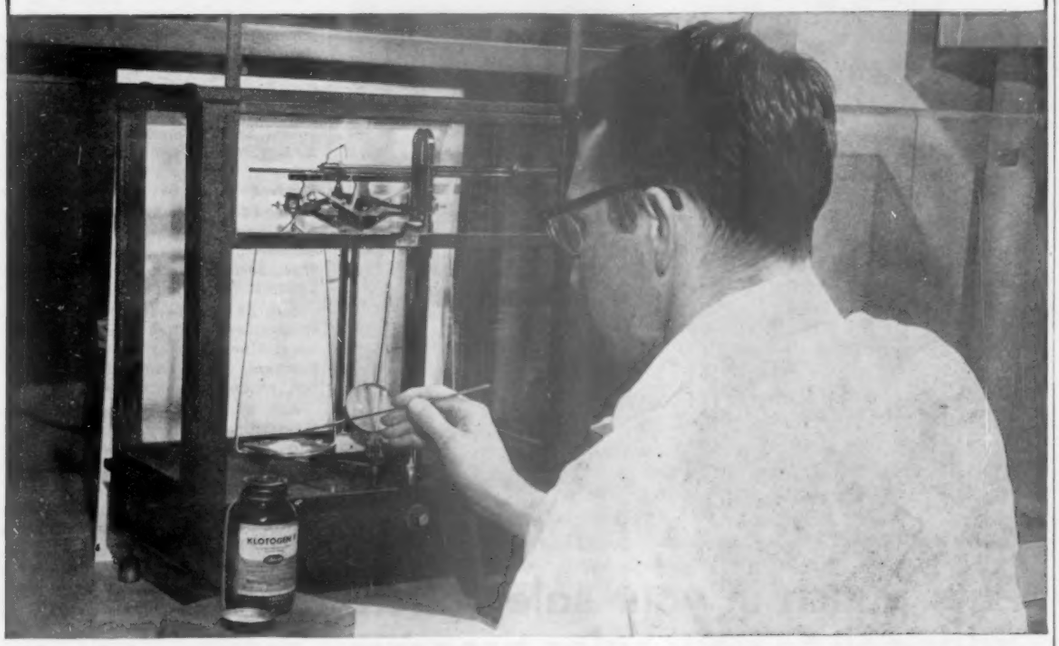

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No matter what kind of poultry your customers raise, vitamin K, the anti-hemorrhagic vitamin, plays an important role in the lives of the birds. And adding KLOTOGEN F, the water-soluble form of vitamin K activity, to your poultry feeds is the best way to assure your customers that the rations they buy contain adequate, absorbable levels of this essential vitamin.

Widespread use of new, high-energy poultry rations means poultry get less natural vitamin K. Moreover, poultry diseases often cut down the flow of liver bile, necessary to absorption of natural K or fat-soluble menadione.

But KLOTOGEN F is *water soluble*—eliminating the vitamin K absorption problem in the intestinal tracts of poultry. Laboratory tests have shown KLOTOGEN F to be three to 10 times as effective as plain menadione in poultry feeds, depending on the type of ration. Thus, KLOTOGEN F provides poultry with the best possible protection against vitamin K deficiency, even in times of stress such as over-medication, enteritis, debeaking and dubbing.

More and more poultrymen are looking for *"menadione sodium bisulfite"* (KLOTOGEN F) on their commercial feed tags. If you want more information about this important poultry feed additive, write or phone Chemical Sales Division, Abbott Laboratories, North Chicago, Illinois.

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BOVEXTRA is economical . . . costs just pennies per animal for the entire conversion period. Packaged in convenient 50-lb. bags.

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Proper rumen function gives cattle full feed utilization with no digestive upsets. BOVEXTRA supplies billions of bacteria to the rumen where they aid digestion and turn feed into meat. This cuts 3 to 4 weeks off marketing time and makes safe, swift change-over from grass to grain.

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Improving Employee Relations

By OLA C. COOL
Director, Labor Relations Institute

How to Handle a Worker In a "Raise Interview"

A quick brush-off of a worker who asks for a raise usually leads to a low morale, spotty production and smoldering grievances.

That's because the family finances are a touchy matter in these days of high prices—and in most cases the Missus won't let her husband forget.

Dipping into the fine points of a raise interview the handling of a worker in the right way usually:

• Makes the worker feel better. He gets a chance to blow off steam and justify himself in the eyes of his wife.

• Brings out any "sleeping discontent" early—before it becomes a production drag on the worker's mind.

• Gives you a clue to what may be wrong in the mill.

Some Preliminary Steps: But even before the worker pops the fatal question, there are these pointers to bear in mind:

• Try and anticipate a worker's request for a raise. You can do this best by keeping close contact with each man via personal chats.

• If, in your talks, you think you spot something bothering a worker call him in and ask him point blank what the trouble is.

How to Handle the Interview: When a worker asks you for a raise, use the following checklist:

• First, take him where it's private. Ease the tension by being friendly and sympathetic. Remember: It's a hard thing for a worker to get enough nerve in hand to talk money.

• Once the question is "before the house," don't stall, get vague, or change the subject. So that you can size up the facts and gauge what approach to take, try asking some leading questions such as these:

Question Chart: 1. Why does he want a raise now? 2. Why does he think he is entitled to a raise? Is it because of his performance? Because somebody else got a raise, or what? 3. Does he know company promotion-and-wage policy? 4. Does he think raises are given unfairly? 5. Does he have a pressing financial problem? 6. What does he think a raise will accomplish, if it is given now? 7. Has he been satisfied with his job and progress in the firm? His treatment? 8. Does he measure his job entirely in terms of money, or are there other important factors?

How to Say "No": Obviously the hardest job in handling a raise minded worker is—how to turn him down. Here's a little blueprint to cover the situation:

• Review company policy on wages and promotions. Be sure to correct any twisted thinking.

• Have your records on the worker handy. See that they are up to date. Go over his performance with him, pointing out his strong and weak points.

• Follow with a presentation of other reasons why he can't have the raise he wants—at this time. However, tell him that he's free to take the problem up with you again any time he wishes.

• To bring him down to earth, compare his general situation with that of some of the other workers—without mentioning names, of course.

• Talk in terms of long range security and explain the company's viewpoint. Show him why there has to be a regular wage schedule.

• Don't make any promises you don't intend to keep.

• Keep your voice friendly—and be sincere in your manner. End by telling him you're glad he dropped in.

Kansas City Feed Club Plans Party

KANSAS CITY—The Kansas City Feed Club will hold its annual Christmas party Dec. 15 at the Town House Hotel in Kansas City, Kansas, with a gala evening planned for members and their ladies.

A cocktail hour starting at 6:30 p.m. will open the event. Dinner will be served at 7:30, with dancing until midnight to follow. Also on the program are some special entertainment acts.

Ladies will receive favors, and special Christmas gifts will be given during a drawing.

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Vigofac® helps us make an even better feed

PURCHASING AGENT:

...and make it for as much as $8.65 less per ton

Here are the facts and figures on the big profit story of the year. . .

in many cases

$1 worth of VIGOFAC

has given results as good or better than

$7 worth of FISH MEAL

With Vigofac it is now possible to supply a more potent and stable source of UGF...rebalance your ration with known nutrients supplied by the fish meal and save up to $8.65 a ton at current prices (Chicago quotations).

We recognize, as you do, that fish meal is an excellent feed ingredient. In addition to unidentified growth factors it supplies concentrated protein and significant amounts of other nutrients such as vitamin B_{12}.

But we also realize that some of the biggest opportunities for increasing feed profits come from purchasing ingredients that supply these nutrients at the lowest possible price consistent with feed performance.

Now a standardized source of Unidentified Growth Factors in Vigofac frees you from dependence on any one source of UGF and makes lower-cost replacement rations practical.

Savings, of course, depend on relative prices of fish meal or fish solubles and other basic feedstuffs that can be used on a replacement or partial replacement basis. These include soybean oil meal, corn, corn gluten meal, meat scraps, etc. Savings vary in different sections of the country and at different times of the year.

Facing page shows comparative results of rations containing usual levels of fish meal and same rations with no fish meal and recommended levels of Vigofac.

Under the flap are examples of modified rations showing how Vigofac can double your profit on some feeds without increasing your selling price a single cent.

CHICK STARTER

	4-WEEKS RESULTS GROWTH (improvement over basal)	FEED EFFICIENCY (improvement over basal)
5% FISH MEAL	14%	14%
0.15% VIGOFAC	23%	20%

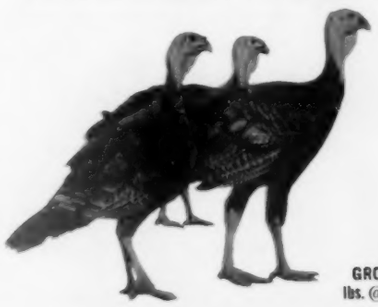
Improvement of rate of gain and feed efficiency of Vigofac ration means more profit to the grower. Lower ingredient cost means more profit for the feed manufacturer. In any starter ration—chickens, poults, pigs and calves—extra gains with Vigofac are comparable (but in addition) to those obtained with antibiotics.

BROILER RATION

	GROWTH (lbs @ 8 wks.)	Lbs. FEED per lb. GAIN
5% FISH MEAL	3.44	2.01
0.15% VIGOFAC	3.39	2.01

In this example, the fish meal cost $6.85 per ton. The Vigofac cost 84¢. Yet Vigofac gave almost exactly the same results as fish meal when both were simply added to a vegetable protein basal ration. When Vigofac ration is *rebalanced* to supply known nutrients supplied by fish meal, growth and feed efficiency are substantially improved.

TURKEY STARTER



	GROWTH lbs. @ 8 wks.	Lbs. FEED per lb. GAIN
10% FISH MEAL (plus 3% whey)	4.42	2.02
0.15% VIGOFAC	4.35	2.01

The Vigofac ration cost $5.80 less per ton. Advantage to the grower was .6c per pound of bird. If the $5.80 savings were retained by the manufacturer as extra profit, net return to the grower would be virtually the same as with the 10% FM, 3% whey ration. *Retaining the whey could result in more profit to the feeder* as well as the feed manufacturer.

PIG STARTERS

	GROWTH (avg. daily gain 7 days to 8 wks.)	Lbs. FEED per lb. GAIN
5% FISH MEAL (avg. 4 groups)	.71	2.08
0.15% VIGOFAC	.79	1.96

In pig starters and prestarters Vigofac can completely replace fish meal and do so at great economic advantage to the grower. This example is a completely practical all-vegetable ration. If your pig starter contains whey, *additional* improvement in growth and feed efficiency is likely to be observed.

GROWING AND FATTENING SUPPLEMENT

	GROWTH (avg. daily gain to market)	Lbs. FEED per lb. GAIN
10% FISH MEAL	1.57	3.36
0.7% VIGOFAC*	1.73	3.18

At the time of these trials, the Vigofac ration cost $2.40 less per ton to make. At current prices (Chicago basis) Vigofac replacement would save about $3.60 per ton. At the same time, the replacement ration gives a much better return to the feeder which would actually justify a higher selling price than the 10% fish-meal ration.

**In hog supplements to be fed with corn, 0.7% Vigofac (14 lbs. ton) has been found to give maximum economic return.*

Complete details of these feeding trials—and many others—are available from your Pfizer salesman. Although the examples given deal primarily with Vigofac in relation to fish meal, similar data (also available) gives comparison between Vigofac and other conventional sources of unidentified growth factors.

Now see examples of replacement rations under this flap.

LIFT FLAP

Here are examples of adjus and the savings Vigofac ma

These practical suggestions show how Vigofac can be substituted for fish meal or other UGF sources in various types of rations.

The many ways that any one formula can be adjusted allow you to take advantage of the most favorable price relationships between basic feedstuffs—while keeping the nutrient balance and performance of your feed constant.

Adjustments in most cases are slight. Savings in many cases are substantial.

These savings come from two sources: (1) a lower cost for a more potent—and more dependable—source of UGF. (2) a lower cost for protein, energy and micro-ingredients to replace values supplied by fish meal.

This concept has been proved in more than three years of carefully controlled comparative feeding trials at the Pfizer Agricultural Research and Development Center, by leading university experiment stations and in large-scale field trials.

They have also been proved and are now being applied by many feed companies—who have been using Vigofac to make 1956 one of their best profit years.

Rations shown here have been tested in both the original and modified forms. They are not intended to represent the most practical or efficient rations, or even the best adjustment, but rather to show *the way adjustments are made.* In each case use of Vigofac ration resulted in more return to the feeder on the basis of improved growth or feed efficiency or both.

Since the Vigofac ration in all cases is less expensive than the fish meal ration the economic advantages are obvious.

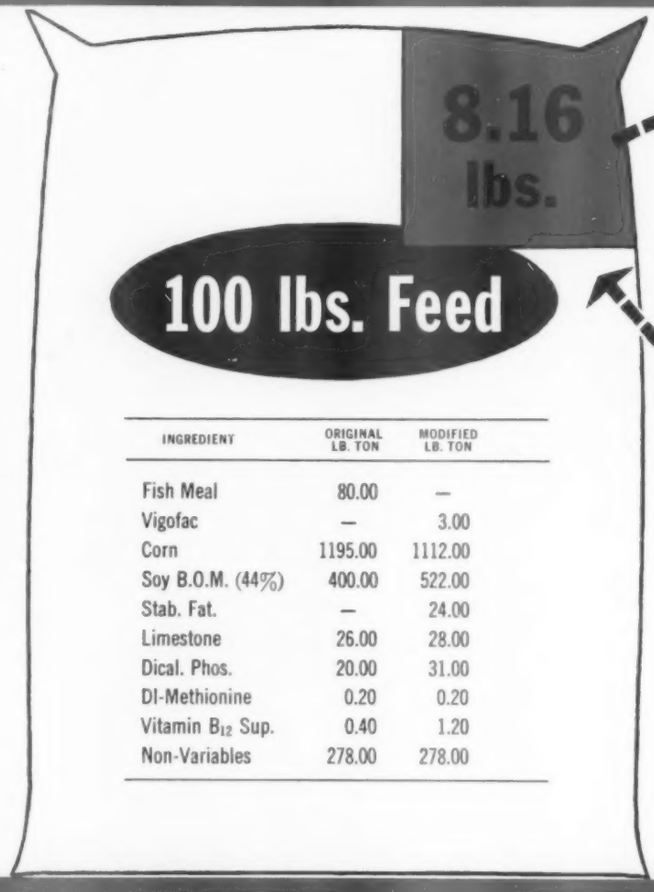
Adjustments to rebalance your own formulas are easily worked out on paper, using your local delivered prices of various feedstuffs and tables showing the percentages of known nutrients supplied by ingredients affected.

Your Pfizer salesman can provide technical data, worked out by Pfizer nutritionists, that will help in making quick calculations. He will also be glad to answer any questions you may have concerning Vigofac. Jot them down, bring them up on his next call.

If you have tested Vigofac only as an addition to your present rations, it is much to your interest to retest on a substitution or partial substitution basis.

The results, we are sure, will be convincing. And if you start now you can have them in time to save substantially on the cost of ingredients that go into the feeds that account for a big share of your spring production.

EXAMPLE 1 Complete Replaceme



INGREDIENT	ORIGINAL LB. TON	MODIFIED LB. TON
Fish Meal	80.00	—
Vigofac	—	3.00
Corn	1195.00	1112.00
Soy B.O.M. (44%)	400.00	522.00
Stab. Fat.	—	24.00
Limestone	26.00	28.00
Dical. Phos.	20.00	31.00
Dl-Methionine	0.20	0.20
Vitamin B_{12} Sup.	0.40	1.20
Non-Variables	278.00	278.00

EXAMPLE 2
A 3% Fish Meal Ration

Vigofac Savings (at time tests were made) **$2.14 ton** (at current prices) **$1.74**

These rations were tested in a commercial type trial by an eastern state experiment station. The Vigofac ration brought the greatest net return. If the Vigofac ration were sold at the same price as the Fish Meal ration, the economic return to the grower would have been practically identical.

	Pounds per ton in basal rations 3% FISH MEAL	0.15% VIGOFAC
FISH MEAL	60.00	—
VIGOFAC	—	3.00
GROUND YELLOW CORN	1163.40	1123.40
SOYBEAN OIL MEAL	600.00	690.00
STEAMED BONE MEAL	40.00	50.00
Non Variables		
ALFALFA MEAL (17%)	50.00	50.00
LIMESTONE, Pulverized	30.00	30.00
DRIED WHEY	40.00	40.00
IODIZED SALT	10.00	10.00
Mn SO_4	.60	.60
TOTAL	2,000	2,000

EXAMPLE 3
Commercial Ration for Growing Poults

Vigofac Savings

When tests were made: **$4.00 ton** (complete replacement) At Oct. 15 prices: **$6.22 ton**

at Oct. 15 prices: **$2.45 ton** (partial replacement) **$5.69 ton**

This shows two ways to modify the same ration. Both Vigofac rations improved growth. Feed efficiency of all three rations were the same. Protein, energy and micro-ingredients were readjusted to give the same dietary composition in all three rations.

	Original "open formula" feed %	Vigofac complete replacement %	Vigofac partial replacement %
VARIED UGF SOURCES			
FISH MEAL	5.00	—	2.00
DRIED WHEY	3.00	—	—
VIGOFAC	—	0.15	0.15
MEAT SCRAPS	5.00	3.00	—

usted formulas
makes possible

SPOT FEEDSTUFFS PRICES

Prices are based on CHICAGO QUOTATIONS for Oct. 15, 1956. Freight and handling charges are not included in these computations. In many cases these represent an important additional source of savings.

FISH MEAL	*Domestic East Coast, ton*	$137.00
CORN (#2 Y)		$1.27½
SOYBEAN OIL MEAL (44%)	*Unrestricted Decatur bulk, ton*	$45.50
VIGOFAC (delivered)		lb. 28¢

adjustments—not reformulations. Approximately the same amount of

cement of 4% Fish Meal with VIGOFAC in a Typical Broiler Ration

YOU TAKE OUT THIS

4.00 lbs. FISH MEAL..27.4¢
4.16 lbs. CORN.....09.6¢

COST per 100 lbs. feed 37.0¢

REPLACE WITH THIS

6.10 lb. SOY BEAN OIL MEAL.....13.9¢
0.15 lb. VIGOFAC.....04.2
1.20 lb. STABILIZED FAT.....08.4
.12 lb. LIMESTONE.....00.1
.55 lb. DICAL. PHOSPHATE.....02.2
.04 lb. VITAMIN B_{12} SUP.....00.7

COST per 100 lbs. feed 29.5¢

VIGOFAC SAVINGS

7½¢ PER 100 LBS. OR

$1.50 TON

These are adjustments—not reformulations. They are made to rebalance for both *known* and *unknown* growth factors in fish meal, maintaining the same protein-energy ratio.

Approximately the same amount of corn was removed from ration as fish meal. This was to permit boosting soy to compensate for protein in the fish meal. Stabilized fat rebalanced for energy. Slight additions of calcium, phosphorus and B_{12} make the two diets practically identical—except in cost.

The Chart Below shows how much this simple substitution would have saved you during each month of 1956, based on prices quoted in Chicago on the 15th of each month (or first market day following) for fish meal, Domestic East Coast; 44% SOBM unrestricted, Decatur bulk; and Chicago Cash Corn.

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
$1.91 ton	$1.71 ton	$1.72 ton	$1.31 ton	$ .72 ton	$ .68 ton
JULY	**AUGUST**	**SEPTEMBER**	**OCTOBER**	Figures for November and December were not available at press time. Why not calculate savings using your own up-to-date at-plant costs?	
$1.02 ton	$1.28 ton	$1.87 ton	$1.50 ton		

EXAMPLE 4
A 28% Protein Turkey Starter

Vigofac Savings (When tests were made) $5.80 ton; (at Oct. 15 prices) $8.65 ton

Results of feeding trials to 8 weeks have shown that Vigofac can completely replace Fish Meal and Whey in Turkey starters and do so at an advantage of ½ to 1¢ per pound of turkey. The ration can, of course, also be modified to retain the Whey *plus* Vigofac for additive effect.

	FISH MEAL WHEY %	VIGOFAC RATION %
FISH MEAL	10.00	—
WHEY	3.00	—
VIGOFAC	—	0.15
CORN, ground yellow	36.10	35.10
SOYBEAN OIL MEAL (50%)	34.00	46.00
DICALCIUM PHOSPHATE	1.00	3.00
Non Variables		
WHEAT MIDDLINGS	10.00	10.00
ALFALFA LEAF MEAL (17%)	3.00	3.00
IODIZED SALT	0.30	0.30
$CaCO_3$	2.00	2.00
VITAMIN MIX	(included)	(included)

EXAMPLE 5
A Hog Supplement

Vigofac Savings (at time tests were made) $2.40 ton; (at current prices) $3.62 ton

Both rations contain animal protein (meat scraps). Calculated analysis for protein, fat, fibre, calcium, phosphorus and net energy is the same for both rations. Vigofac ration, however, produced substantially better gains and feed efficiency than the 10% Fish Meal ration.

	10% FM RATION %	VIGOFAC RATION %
FISH MEAL	10.00	—
VIGOFAC	—	0.70
SOYBEAN OIL MEAL (44%)	60.00	36.00
SOYBEAN OIL MEAL (50%)	—	33.80
MEAT AND BONE SCRAPS (50%)	4.00	4.00
ALFALFA LEAF MEAL (17%)	10.00	10.00
GROUND LIMESTONE	3.50	3.45
STEAMED BONE MEAL	7.00	7.00
IODIZED SALT	2.00	2.00
DICALCIUM PHOSPHATE	—	1.00
SOYBEAN OIL	0.55	0.55
VITAMIN MIX	1.50	1.50
MINERAL MIX	.23	.23
TM-5 (5 gm Terramycin lb)	0.50	0.45

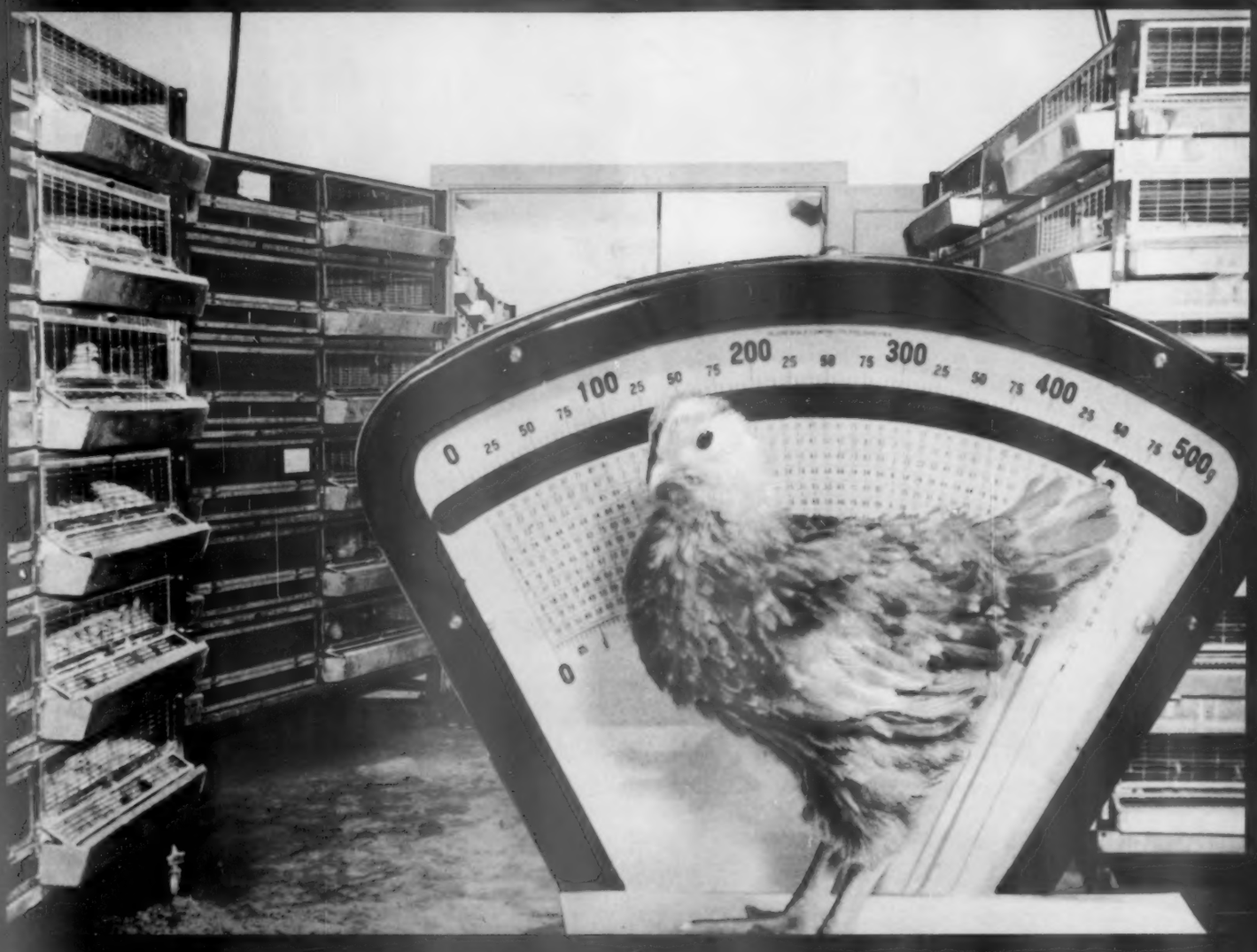
EXAMPLES 6-7-8-9
Savings When VIGOFAC Replaces Various UGF Sources,

all nutrients rebalanced—utilizing meat scraps as source of animal protein. Each of these rations has been tested and in each case the economics have favored the Vigofac replacement diet.

Since these calculations were made, changes in price relationships have occurred that would make the economics even more favorable today.

SOURCES OF UGF	RATION 143 Orig. %	RATION 143 Mod. %	RATION 144 Orig. %	RATION 144 Mod. %	RATION 145 Orig. %	RATION 145 Mod. %	RATION 146 Orig. %	RATION 146 Mod. %
DRIED WHEY					2.50		3.00	
DRIED SKIM MILK			2.00					
DISTILLER'S SOL.							3.00	
FISH MEAL	3.00		3.00				3.00	
FISH SOLUBLES					3.00			
MEAT SCRAPS		4.00		5.00	5.00	5.00		4.00
VIGOFAC		0.15		0.15		0.15		0.15
COST PER TON	$68.60	67.94	77.84	74.11	74.00	66.04	92.77	89.52
SAVINGS FROM Vigofac, ton	$.66		$3.73		$7.96		$3.25	

Growth assay tests are made on every lot of VIGOFAC®



U.G.F. Performance is guaranteed

Have you tested Vigofac on an economical replacement basis as well as for improving rate of gain and feed efficiency?

Have you tested it in your pig starters, growing supplements and turkey rations as well as broiler rations?

Our Agricultural Research and Development Center will be happy to extend technical assistance. Why not set up an appointment with your Pfizer representative today?

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7600 Ambassador Row
Dallas 7, Texas

"Good morning, madam. I'm from the gas company. I understand there's something in the house that won't work."

"Yes, he's upstairs."

◆ ◆ ◆

The small boy was looking at photographs of his parents' wedding in an album. His father described the ceremony and tried to explain its meaning. Suddenly light dawned.

"Oh!" the child exclaimed. "Is that when you got Mummy to come and work for us?"

◆ ◆ ◆

A certain corporal had been overseas two years when he received word from his wife of a newly-born son.

Cigars were in order, so he purchased several, and began dispensing them, repeating the news of the blessed event. With one cigar left he entered the lieutenant's office.

After hearing the corporal's story the lieutenant said: "Jones, doesn't it seem strange to you that you have been overseas at least two years and your wife has just now had a baby?"

Jones beamed brightly, "Oh, no sir," was his reply, "There was three years between my brother and me."

◆ ◆ ◆

Senator Gabble: "And now, gentlemen, I should like to challenge your thought and tax your memory."

Colleague: "Say, why haven't we thought of that before?"

◆ ◆ ◆

The youngest in the family came home from Sunday School the other day beaming with new-found knowledge. "I found out who the first two people were," she announced, "but I can't remember if it was Odd and Even or Even and Odd."

◆ ◆ ◆

A little boy had been pawing over the stationer's stock of greeting cards for a long time when a clerk asked him, "Can I help you find what you're looking for, son? Birthday card? Get-well card? Anniversary congratulations to your mother and dad?"

"Not exactly," said the little boy, shaking his head. Then, "You got anything in the line of blank report cards?"

◆ ◆ ◆

Life expectancy is increasing. You can expect anything these days.

Victor Chemical Plans New Phosphate Plant in Chicago

CHICAGO — Victor Chemical Works announces that negotiations are in progress to acquire a large industrial site in Chicago where it is proposed to construct an important

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RUFIS is THE NATURAL rumen bacteria from fast gaining government inspected cattle stabilized and concentrated in cobalt and peptones. In recent tests a well known midwestern feeder added RUFIS to the ration of his growing calves. They gained up to 30% faster than those in test lot. Their hair became slick and glossy; digestive disturbances were practically eliminated; feeding costs were slashed almost 20%; they graded higher when marketed. PROOF—Rufis gives top results.

RUFIS IS NOT TO BE CONFUSED WITH INFERIOR ARTIFICIALLY CULTURED PRODUCTS. THERE IS ONLY ONE RUFIS. It has been thoroughly tested by leading colleges and in the feed lot for over 4 years. RUFIS IS INSURED FOR $1,000,000.

RUFIS can be fed with stilbestrol. 3 to 3½ lb. gains have been commonplace. It is easy to mix. Cost is low. PLAN NOW to add RUFIS to your Formula Feeds. Step up the CONVERSION FACTOR! Give your customers the EXTRA FEEDING RESULTS that mean EXTRA TONNAGE for you. WRITE for complete FACTS TODAY!

Digestive disturbances are greatly reduced and gains are stepped up when RUFIS is added to the ration of lambs and other ruminants.

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Golden West Condensed Buttermilk
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Fish Meal — Fish Solubles
Toxite Disinfectant Spray
Royal Oak Charcoal — United Calcium Carbonate
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addition to Victor's midwestern manufacturing facilities.

The plant will be Victor's second in the metropolitan Chicago area and its eighth in the U.S.

Located on the south bank of the Calumet River-Sag Canal waterway, the Victor facility will enjoy all three major forms of transportation for industrial raw materials and finished products, rail, highway, and waterway, and the company anticipates that the new plant and its ability to deliver finished products by barge will open new markets for its products.

Final negotiations will be completed as soon as zoning approval is given by the city of Chicago. The first unit planned is a phosphoric acid plant for foods, metals, petroleum, and liquid plant foods to supply the requirements of the industries and farms of Illinois, Wisconsin, Indiana and Michigan.

The next step that is contemplated is the construction of a phosphate salts plant which will give Victor additional capacity for the phosphates it supplies the detergent and milling industries.

The plants are being designed for large tonnage production with advanced instrument controls. A similar type of plant was erected by the company a few years ago at Morrisville, Pa. It started small, but it is now a major producing point for several of Victor's broad lines of phosphate chemicals.

Concurrently, Victor also is enlarging its elemental phosphorus plant at Mount Pleasant, Tenn., where the company's eighth electric furnace, of 35,000 KW capacity, is being built. This unit is planned to come into production in the last half of 1957 and will add phosphorus capacity to that already available from the seven furnaces at Mount Pleasant; Victor, Florida; and Silver Bow, Mont.

"The use of products based on phosphorus continues to grow as more and more promising developments come out of research laboratories such as Victor's and those of many of the companies we supply," Rothe Weigel, president of the firm, said. "We believe the future of the phosphate industry to be such that we plan a steady increase in our capacity to produce. With three electric furnace plants in strategic locations in the nation, and five phosphate plants, including the new one in Chicago, ranging from the Eastern Seaboard to the Pacific coast, we are in an unusually good competitive position to meet almost any demands our customers may put upon us in the development of their own growth patterns."

GMI DIVIDEND

MINNEAPOLIS—The board of directors of General Mills, Inc., declared a quarterly dividend of $1.25 per share on General Mills 5% preferred stock payable Jan. 1, 1957, to stockholders of record Dec. 10, 1956. This is the 69th consecutive quarterly dividend on General Mills, Inc., 5% preferred stock.

A Daffin Success Story.

Feed Dealer Builds Outstanding Business From Scratch with One Daffin Mobile Mill

Gordon L. Smith
Fillmore, New York

All of this was made possible through a Daffin Mobile Service.

Gordon L. Smith, of Fillmore, New York, built a successful feed business from "nothing flat" with the help of a Daffin Mobile Mill and its steady accumulation of satisfied customers. Here's how he did it:

Back in 1952, Smith was a part-time farmer when he heard the Daffin Story. In spite of warnings that "it costs too much," he sold his small herd of dairy cows and took delivery of a Mobile Daffin.

By the end of the year, he was serving close to 100 farmers and took over a feed store to sell his national feed brand through his Daffin. This venture was started in the face of vigorous competition, but Smith reports that his most valuable asset was that he "became important to the local farmers."

Three years later, he had not only paid for his Daffin, but had acquired 5 trucks, 2 lime spreaders, a new feed store, a new home, a new car, an outside salesman, 2 Mobile Operators—*and a new way of life!*

From month to month, he is either at the top, or near the top of his district for feed tonnage volume.

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MARCOL B-75 protects nutritive values of feed. A vegetable oil, it is ten times more stable than natural oils and fats. Tests prove it is 12% more digestible, too.

For all of these reasons, more and more feed-manufacturers are insisting on alfalfa with MARCOL B-75 added.

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Secretary Benson Urges Reduction in Turkey Breeder Flocks

WASHINGTON — Ezra Taft Benson, secretary of agriculture, has urged turkey breeders to reduce the number of breeder hens they are planning to hold back for the production of hatching eggs and turkey poults in 1957.

The secretary cited U.S. Department of Agriculture reports of breeders' intentions to hold 16% more heavy breeder hens and 3% fewer light breeder hens for the production of eggs and poults in 1957. In October, a 31% increase in the number of turkeys tested for pullorum disease also was reported.

"These reports," Mr. Benson said, "point to the possibility of an outsize production of turkeys in 1957, in excess of consumer demand at reasonable prices to producers. The prices of hatching eggs and turkey poults may be low, but cheap poults do not mean profitable turkeys."

Since late September, USDA has been buying turkeys for school lunch and institution use in an effort to stabilize prices for the biggest crop of turkeys ever produced. Purchases through Nov. 23 totaled 27,114,000 lb. Even with this assistance, prices received by producers have been the lowest in several years.

Secretary Benson said that "the turkey industry cannot count on government buying in every year as a part of its market outlet. Instead, all operatives in the industry—breeders, hatcherymen and turkey growers—should make every effort to avoid over-production for better returns in the open market."

JOIN WALNUT GROVE—Pictured are four Wisconsin men who will form the nucleus of a new sales-service division in Wisconsin for the Walnut Grove Products Co., Inc., Atlantic, Iowa. Left to right, they are: Ronald Stebbins, Beaver Dam; C. C. Dargue, Waupun; George Easterhouse, Dodgeville; Eldo H. Meyer, sales manager of Walnut Grove, and H. H. Juul, Watertown. Before joining Walnut Grove on Nov. 1 the men were associated with the MoorMan Manufacturing Co., Quincy, Ill.

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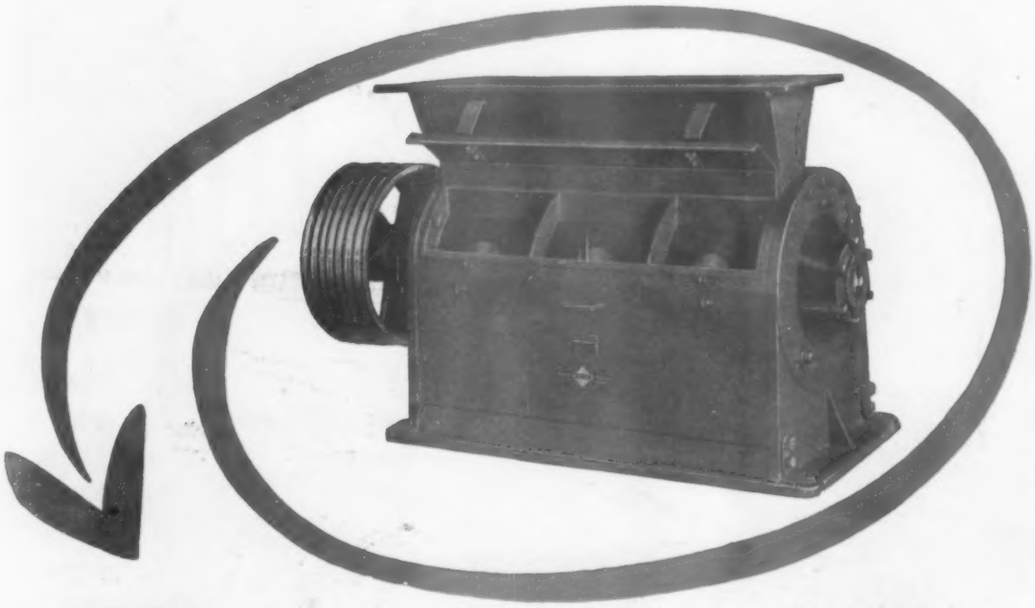

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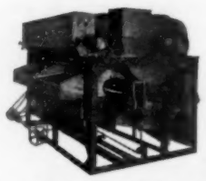
Eureka Corn Cutters do have a reputation, and a good one. Here's why: Capacities are high, power consumption is low; cut corn quality is high, by-product sacrifice low; knife resharpening and new knife replacement at a minimum. These are important reasons why Eureka Corn Cutters have attained and maintained the high regard in which they are held by feed mills large and small. Catalog 167-A contains complete information on Eureka Cutters, Combination Cutting and Grading units, Knife Grinders and Dressers. A postcard request will bring you a copy.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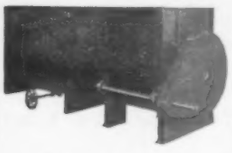
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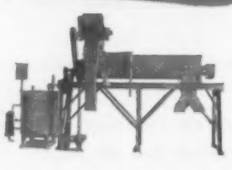
Cut Crimper—Single Pair Roller Mill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Hay Shipments Heavy In Central Texas

WACO, TEXAS—The government's hay program and the reduction in rail rates have resulted in heavy inshipments of hay in this drouth area. About 2 000 tons have been unloaded at Waco since the program started. according to trade estimates.

Very little local hay is available, and hay trucked from West Texas would be high because of the long haul, so receipts have been from Nevada, Idaho, Montana, Iowa and Nebraska. Additional heavy shipments are anticipated in coming months.

Shipments from the more distant points have cost half of the regular rail rates ranging $25@30 ton and the government pays $7.50 of the reduced rate.

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There is another reason we like them and this applies to the appearance of the bags. In our opinion the printing shows up much better giving us a more attractive product.

We certainly recommend the use of this material to anyone buying bags, because the longer life more than pays for the additional cost and you get the other advantage mentioned.

Sincerely yours,

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F. E. Miller

F. E. Miller, Ass't. Mgr.

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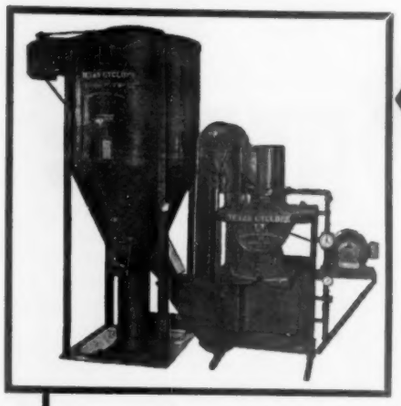

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feed mixing units were made to work as a team—or to fit in with existing facilities. Shown here is the TEXAS CYCLONE FEED MIXER in combination with the TEXAS CYCLONE SWEET FEED MIXER—the finest mixing combination you can find. Molasses mixing is made easier and better with a patented spray process that insures blending. Write for free description folder.

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That's what users say about Texas Cyclone. Simple in design. Few moving parts. Low upkeep. Hundreds in use for many years.

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AFMA AWARD—W. E. Glennon (left), president of the American Feed Manufacturers Assn., presents the annual AFMA $1,000 research award to Dr. R. W. Luecke, Michigan State University, at the annual meeting of the American Society of Animal Production in Chicago. Dr. Luecke is the ninth scientist to be selected by the society for this award for outstanding research.

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PILOT BRAND Oyster Shell is pure calcium carbonate—a perfect eggshell material. It will definitely help your poultry-raising customers get maximum production of stronger shelled eggs.

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PILOT BRAND Oyster Shell is clean, kiln-dried, odorless—not a bit of waste or dirt. Because it's 100% usable, PILOT BRAND is lowest in cost per usable pound.

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PILOT BRAND, with big year-'round demand, assures you of *easy sales ... fast turnovers ... fine profits.*

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Oyster Shell Products Corporation

Dr. R. W. Luecke Receives AFMA Research Award

CHICAGO — A Michigan State University biochemist has been selected by the American Society of Animal Production to receive the $1,000 award from the American Feed Manufacturers Assn.'s Nutrition Council as the outstanding research worker in animal science for 1956.

Dr. Richard W. Luecke, professor of agricultural chemistry, was named for the honor during the society's 48th annual meeting in Chicago Nov. 23-24. Presentation of the award was made by W. E. Glennon, AFMA president, at a luncheon concluding the society's meeting.

Dr. Luecke is best known for his work in swine nutrition, although his cooperative research in many areas of ruminant and non-ruminant nutrition has also been noteworthy. He recognized early the merits of young pigs as experimental animals and his work has been particularly productive in establishing the vitamin B needs of the young pig. He is also noted for his studies relating the enteric disturbances in weanling pigs to nutrient factors.

Dr. Luecke is a native of St. Paul, and obtained his B.A. degree in

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That's why feed manufacturers with an eye for top feed performance and repeat business don't take chances on "phantom" phosphorus . . . don't shackle feed performance with phosphorus animals can't use.

They rely on DynaFOS for the best in phosphorus, and they get higher biological availability from International's dicalcium phosphate in their feeds. Each ton gives more pounds of dynamic phosphorus, less "phantom" phosphorus. And they pay *less* for each pound of available phosphorus.

If you are not now using International's DynaFOS, write or phone your nearest sales agent for samples, quotations and future bookings. You'll find you can rely on the dependable, even supply — today and in the months to come.

One pound of Dynamic DynaFOS gives you as much available phosphorus as 2 to 9 pounds of unprocessed, raw phosphates . . .

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1 PHOSPHORUS CONTENT	18.5%	9.0%	14.0%	13%
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chemistry at Macalester College in that city. His M.S. and Ph.D. degrees in biochemistry were both granted at the University of Minnesota. After working there as an assistant under Dr. L. S. Palmer, he joined the staff of the Texas Agricultural Experiment Station in 1943 as a biochemist. In 1945, he was appointed professor of agricultural chemistry at Michigan State University, the position he now holds.

A member of several scientific organizations, Dr. Luecke is on the subcommittee on swine nutrition of the National Research Council. His accomplishments and contributions to the nutrition field are evident in the 58 publications in scientific literature.

Dr. Luecke is the ninth member of the American Society of Animal Production to receive this award since 1948. Previous award winners include Dr. Lester E. Hanson, University of Minnesota (1955); Dr. Wise Burroughs, Iowa State College (1954); Dr. Damon V. Catron, Iowa State College (1953); Dr. W. M. Beeson, Purdue University (1952); Dr. Lorin E. Harris, Utah State Agricultural College (1951); Dr. John K. Loosli, Cornell University (1950); Dr. J. L. Krider, University of Illinois (1949), and Dr. E. W. Crampton, McGill University, Quebec, Canada (1948).

Each year, the AFMA provides three $1,000 awards to outstanding men of science. Previous winners this year were: Dr. Stanley J. Slinger, Ontario Agricultural College, selected by Poultry Science Assn., and Dr. J. C. Shaw, University of Maryland, chosen by American Dairy Science Assn.

Livestock Laboratory Planned in Tennessee

NASHVILLE, TENN. — Tennessee may soon have a new $300 000 livestock disease diagnostic laboratory, according to Gov. Frank Clement who made the announcement at the Tennessee Farm Bureau Federation's convention here.

The laboratory would speed detection of diseases among the state's cattle, hogs and other livestock. The laboratory will probably be built on state property near the Nashville Airport.

California Livestock Day Set for Jan. 26

DAVIS, CAL. — Feeding achievements in the past year will highlight an all-day program at the Animal Husbandry Livestock Day at the University of California, Davis, Jan. 26.

Harold Goss, acting chairman of the animal husbandry department, said members of the department were also arranging programs to cover the past year's advances in breeding, and management of horses, sheep, swine, and beef and dairy cattle.

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for feeding purposes

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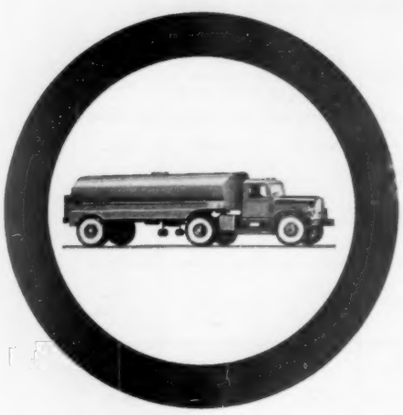

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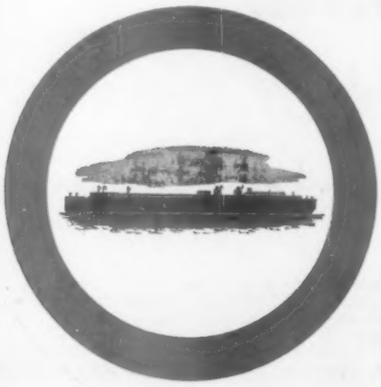
If you require feed molasses for immediate or deferred shipment *it will pay you to write, wire or 'phone . . .*



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- Haul bulk and bagged feed in the same load.
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- √ Chain or Auger Conveyors
- √ Compartments as desired

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Reducing Shipping and Receiving Costs

By Robert Dyment

Freight rates are becoming increasingly higher. Many feed manufacturers and distributors use private freight carriers for shipping and receiving of feeds and supplies. Because of the high freight rates, many manufacturers and retailers are faced with the necessity of shortening their lines of shipping or setting up warehouses at an expensive figure because of these rates.

There is no reason to believe that the level of rates will not continue to climb, thereby increasing the problem many times over.

To help solve the problem, it would seem that a feed manufacturer, or distributor, in order to minimize these raises, should streamline its shipping and receiving department in order to help the carriers operate more efficiently, so that its costs do not spiral faster then the ultimate feed buyer can absorb.

The Genesee Region Truck Owners' Federation, Rochester, N.Y., an association of intercity common motor carriers, have come up with the following suggestions and recommendations. These suggestions and recommendations can ease the lot of the carrier and simplify a feed manufacturer's or a feed dealer's shipping and receiving operations, thus helping reduce the trucking costs, as well as shaving overhead dollars on operating costs or on products.

Feed manufacturers and dealers, with their own truck, or fleet of trucks or who hire outside carriers, will find these recommendations helpful in cutting costs and streamlining their freight, receiving, shipping and delivery departments.

1. **Preparation of the shipment:** (a) Proper packaging for easy handling. (b) Proper marking for easy distribution. (c) Have the bill of lading typewritten in advance. (d) Call the carrier so he can plan his pickups.

2. **Selection of a carrier:** (a) Know your carrier and his key personnel. (b) Select only recognized carriers. (c) Select the carrier with the most direct service. (d) Select the carrier with the lowest through rate commensurate with a good service. (e) Keep to a minimum the number of trucks in your receiving and shipping rooms.

3. **Shipping:** (a) Have sufficient

UP OR DOWN—Shipping, delivery and receiving costs go up or down for the feed manufacturer and distributor and allied firms commensurate with the planning—or lack of planning—that goes into this phase of the operation. Because these costs have been rising steadily feed men must keep a close watch on their shipping, delivery and receiving costs.

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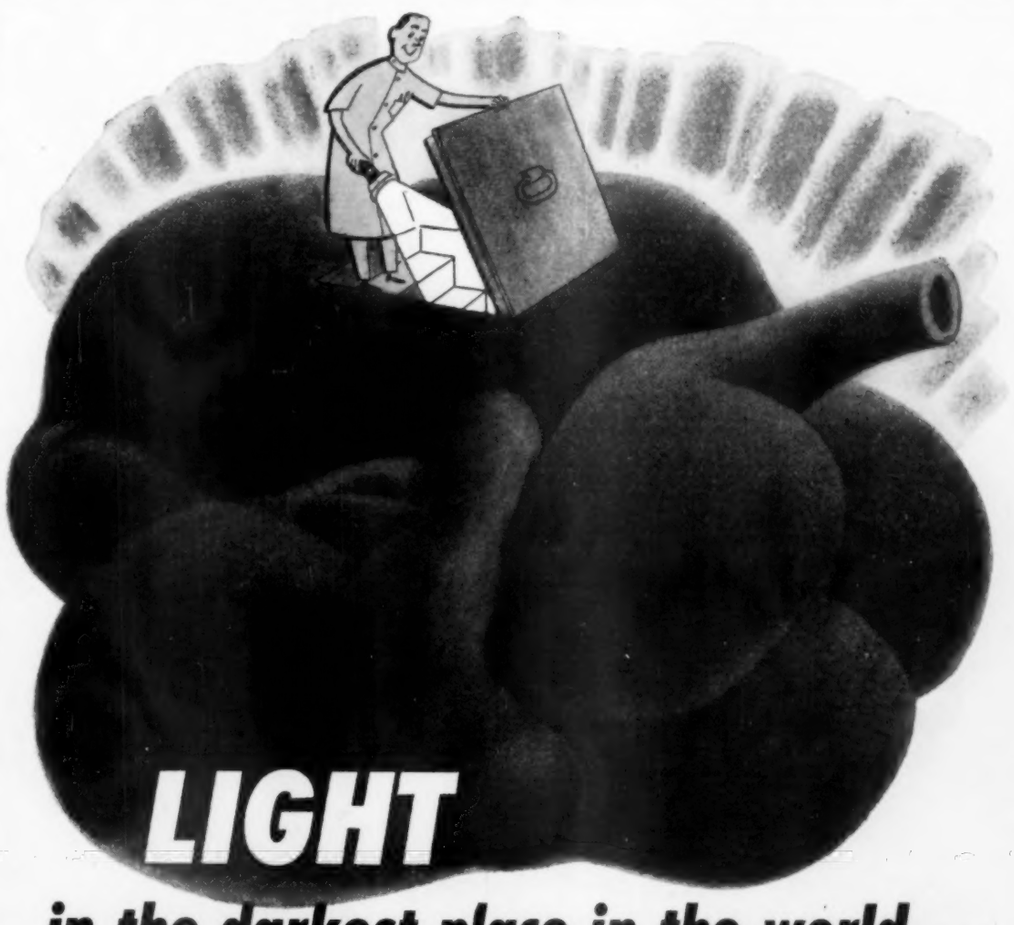

in the darkest place in the world...

Research has opened trapdoors to let some light into "the darkest place in the world"—the inside of a cow's stomach. But the science of rumen nutrition is still young. We know that ruminants build some of their own vitamins. They build milk fat from fatty acids produced in roughage digestion. They build protein from Urea and other simple non-protein nitrogenous substances. The full story of rumen microorganisms and rumen activity is gradually unfolding.

Recent chapters in this story are interesting and valuable to manufacturers of mixed feeds.

You can get the latest information on the rumen compiled by NITROGEN DIVISION, makers of PROCADIAN* Urea Feed Mixture. Write to Dr. D. F. Green, Nitrogen Division, Allied Chemical & Dye Corporation, 40 Rector St., New York 6, N. Y. A postcard with your name, title and address, plus the words "Rumen Urea" will bring a prompt reply. *Trade-mark

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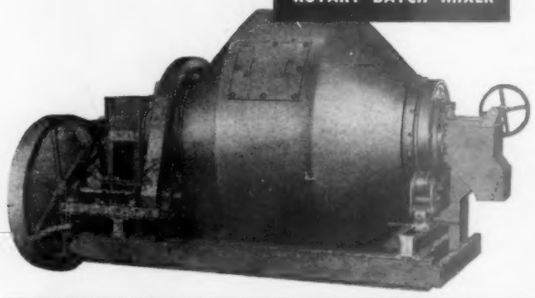

IKE'S TURKEY—President Eisenhower received his Thanksgiving turkey—a live, 40-lb., broad breasted bronze tom—from the National Turkey Federation and the Poultry and Egg National Board in front of the White House before a large group of news cameramen. The turkey was presented by J. Arza Adams, president of the NTF, Pleasant Grove, Utah, who is shown at far right opposite President Eisenhower. Shown in forefront between the President and Mr. Adams are (left to right): Leslie S. Hubbard, PENB president, Lancaster, Pa.; Mrs. Ezra T. Benson, wife of the secretary of agriculture; Henry D. Mangus, executive secretary-treasurer, Indiana State Poultry Assn., Lafayette, Ind.; Mrs. Hubbard; Chester Housh (glancing downward), Elkton, Va.; Secretary of Agriculture Benson, and Mrs. Adams. At the top is M. C. Small, executive secretary-treasurer of the NTF.

help available. (b) Avoid congestion in your shipping platform. (c) Have proper handling facilities. (d) Make sure that you're open the hours that such a carrier works—8 a.m. to 5 p.m.

4. **Claim filing:** (a) Proper preparation of documents. (b) Know the statute of limitations. (c) Keep all packing available for inspectors.

5. **Tracing:** (a) Make sure the carrier you are tracing is the one that is handling the shipment. (b) Have the name of shipper, origin, destination, date of pickup, available when tracing. (c) Make sure you have original bill of lading on hand. (d) Do not make unnecessary demands on time of tracing. (e) Give the carrier a reasonable time to transport the merchandise.

6. **Routing:** (a) Be sure and route by a carrier you know services the origin. (b) If you route best way or cheapest way, make sure your supplier notifies you how and when he shipped it.

7. **Receiving and inspecting:** (a)

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Instruct receiving personnel to check condition of outside container before signing for shipment. (b) If outside container shows indications of inward damage inspect it at once. (c) If obvious outside damage or possible loss is suspected count contents and make notation on freight bill. (d) Don't ask the carrier for ambiguous notations on your freight bill. (e) Don't refuse a shipment until you are sure you cannot use it. It is very costly for the carrier and customer to handle refused shipments.

8. **Payment on freight bill:** (a) Try to arrange credit rating with your carriers. Much time is wasted in cash payment. (b) If you pay for your shipments by cash it is suggested you open a small check account for that purpose so that larger amounts can be paid at the time of delivery. (c) Pay your charge freight bills within the prescribed Interstate Commerce Commission limitations of seven days. This saves the carrier the additional cost of follow-up. (d) Don't arbitrarily make changes in amounts on freight bills before remitting without contacting the carrier.

9. **Encourage your purchasing agent and others to see transportation representatives.**

10. **Encourage your shipping and receiving clerks to study transportation subjects in local colleges.**

11. **Take an active part in rate cases:** (a) Accomplish this through your local transportation organizations, chamber of commerce and others.

12. **Avoid congestion at your place of business:** (a) This is often caused by personnel's attempt to favor too many carriers, each one not having a large enough stake in your business to give the personal service you deserve. (b) Try and utilize carriers that have the largest coverage with the best service.

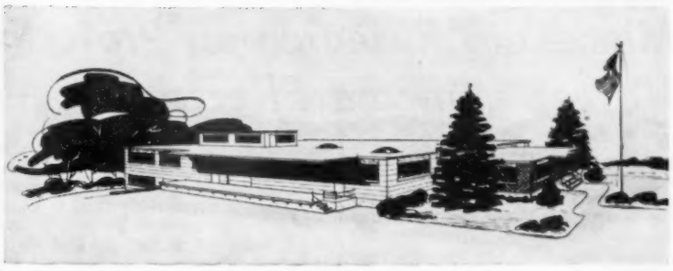
13. **Special services:** (a) Don't ask your carrier for special services which increase costs. The freight rate which you are charged covers a free pickup by one man, transportation over the road and a free delivery by one man. Additional handling or special services are chargeable beyond this rate to the shipper or receiver.

Manufacturers and retailers, in planning for the future and streamling for the present, shouldn't forget to streamline their transportation operations. Transportation costs are an integral part of the total cost of products. Changes can often effect a one or two penny saving on all items sold or manufactured.

The American Trucking Association has what it calls the "Shipper's Code," and can help speed the goods being received or shipped. The "Shipper's Code" is as follows:

"We recognize that our carriers are important to the success of our company. Therefore, we will:

1. Give our carriers a delivery schedule so our receiving docks will be clear when they arrive.
2. Set up a shipping and pickup schedule so that our carriers will not have to wait.
3. Schedule some carriers in for early pickup, especially large shipments.
4. Advise our carriers well in advance of our volume of shipments and any special equipment we need.
5. Pack our shipment in sizes for easy handling.
6. Mark our packages clearly so checking is simple.
7. Assemble our shipments for each carrier in one area to speed loading.
8. Provide our carrier with clear complete copies of our bills of lading.
9. Have our bills of lading ready when the driver calls.
10. Provide good handling equipment and dock plates.
11. Load shipments in a special sequence if our carrier requests.
12. Give the driver a hand when he needs it."



NEW PLANT—All manufacturing operations of the Thayer Scale & Engineering Corp. have been transferred to the firm's new plant at Pembroke, Mass., located on a 20-acre site. The removal from the plant at Rockland, Mass., was made necessary in order to meet the need for tripling the company's production capacity. Test equipment housed in the new plant includes a recirculating conveyor system three floors high to permit continuous testing, under feed and flour mill load conditions, of Thayer's line of automatic bag-filling and weighing equipment.

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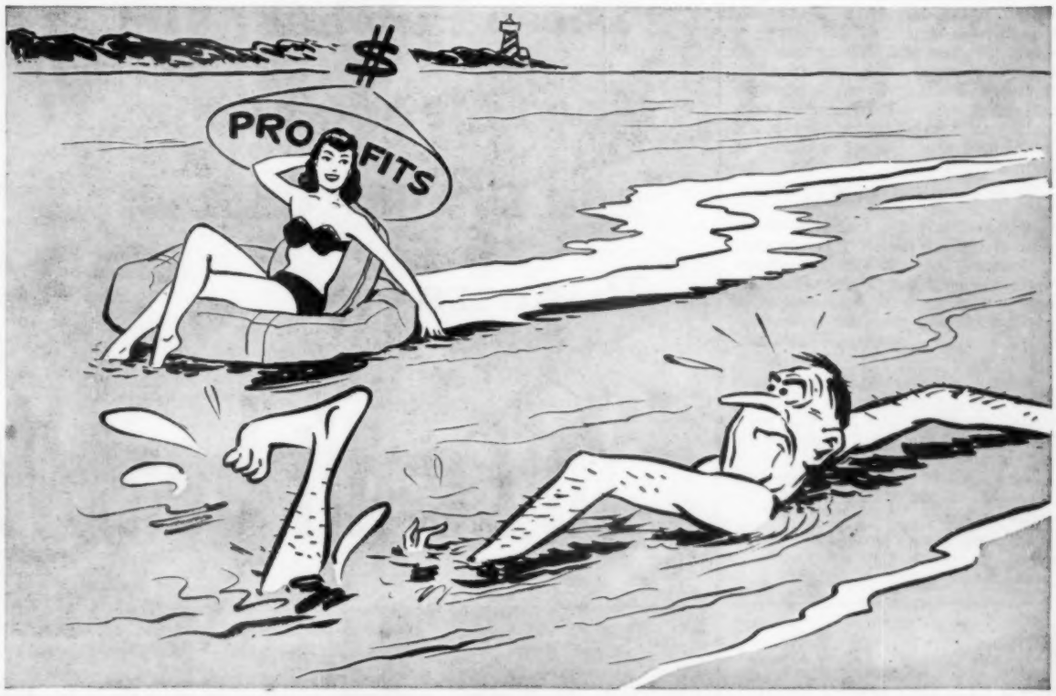

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Minnesota Research on Protective Milk May Have Significant Effects on Feed Industry

By THOMAS E. LETCH
Feedstuffs Editorial Staff

Experimental work done by two University of Minnesota scientists may in the near future have noteworthy effects on the formula feed industry.

Just a year ago Dr. William E. Petersen, professor of dairy husbandry, and Dr. Berry Campbell, associate prefessor of anatomy, let the general public in on some work they have been doing.

In their experiments, they inject killed disease organisms, called antigens, into a cow's udder. The milk produced following this injection contains a large number of antibodies.

The Minnesota scientists find that animals and humans who consume this antibody-containing milk, absorbed the antibodies through the digestive tract into their bloodstreams and acquire immunity to the diseases from which the antigens were originally obtained.

Many possibilities

This principle of getting a cow to give immunity-producing antibodies has opened a variety of exciting possibilities—not only in the field of human health, but also in veterinary medicine. And the development has significant applications in the feed industry. Healthier livestock could result. And if people drink more antibody milk, the dairy industry would likely be a much larger consumer of formula feed.

In speaking of his and Dr. Campbell's work, Dr. Petersen exudes enthusiasm. Excitedly, he envisions the control and alleviation of any number of diseases, both for humans and animals, although he is quick to point out that more evidence needs to be gathered before they can know positively about the validity of their findings.

Dr. Petersen says that the antibody milk idea got its start at Minnesota nearly 10 years ago. In those years Dr. Petersen can recall countless disappointments and excursions up blind alleys. Some of the basic immunology teachings hindered their work, Dr. Petersen says.

Immunologists have long recognized the ability of the cow's udder to produce antibodies to protect newborns against disease. However, the immunologists have maintained that only in the newborn calf is it possible for this milk to be absorbed through the digestive tract to produce immunity, and then only in the first 24-72 hours of life.

In their experiments, Drs. Petersen and Campbell found that this is not true. They fed the antibody milk to five-month old, weaned calves and got a positive response to tests to determine if the blood had absorbed the antibodies. They also got response to the antibody tests when they drank the milk themselves, and were able to get similar results by feeding the milk to pigs, chickens, sheep, goats, guinea pigs, rabbits and other species.

In the year that has elapsed since the Minnesota scientists announced the progress of their work, they have performed numerous experiments that have given them more information to bear out their theories.

In experiments with disease organisms that are responsible for losses of calves, Dr. Petersen says that they have been able to produce milk containing antibodies capable of fighting the 11 diseases considered as causing the greatest losses. Commercial vaccines used against these diseases were used as the antigens for injecting into the cow's udder.

Milk has been produced that contains antibodies against any number of bacterial diseases. Virus diseases have posed greater problems for the researchers, primarily, Dr. Petersen says, because not enough of the virus can be isolated to use as the injecting antigens.

The range of antigenic material to which the cow's udder will respond seems limitless, Drs. Petersen and Campbell wrote last year. In addition to the bacterial and viral agents they have tried, they have also investigated other disease-producing agents. The metazoan parasites of animals and the pollen allergens of man are as subject to the antibody production as are the usual pathogens, they say. Experiments on a fairly large scale are currently under way to test the effectiveness of the milk in preventing allergic reactions and certain diseases.

How Produced and Used

Assuming that the experiments on both humans and animals show that the protective milk can produce immunity, how then would the milk be produced and used?

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These Hatchery and Feed Merchandising and Display Contest Winners say:

A complete program of Display and Merchandising won second prize in the feed dealer class for Farm-Air Co., Princeton, Ill., in Hatchery and Feeds nation-wide contest. This is just one of many seasonal displays used by the firm to promote the sale of feeds and allied products.

"You can't beat Wayne for

An employee of the Norfolk Hatchery, Norfolk, Nebr., second place winner, Hatchery class, in Hatchery & Feeds nation-wide contest, shows the miniature ferris wheel which is one of the firms successful displays. Chicks hop on for a free ride and at the same time eat Wayne Feed from the small feed troughs in the seats. A mass display of Wayne Feeds adds impact to the selling power of the live display. Wayne merchandising ideas throughout the store boost feed sales the year 'round.

Key's Hatchery, Delavan, Ill., third place winner in the Hatchery Class of the Merchandising and Display contest used the Wayne Feed lighted store sign for a real attention getter both day and night . . . and to identify themselves as the Wayne headquarters in their community. They plan an annual "open house" as a means of acquainting prospective customers with their business operation.

These "Glamour Girls" were successful feed sellers for the Alta Cooperative Elevator, Alta, Ia., third place winner, dealer class, in Hatchery & Feeds nation-wide contest. The egg-laying derby put on by Manager Edgar F. Schuelke drew wide attention and attendance and was one of the many sales-getting merchandising aids he uses with Wayne Feeds. A 10 percent increase in feeds sales was recorded from this one promotion alone.

success, Drs. Petersen and Campbell came to realize that their success created many problems.

"If not properly controlled, the protective milk idea could become a giant fraud," Dr. Petersen says, pointing out that there are no easy tests for determining if a substance passed off as proective milk actually contains antibodies capable of producing immunity.

"Since these tests are rather involved and difficult," he states, "the control must come through the integrity of licensees who are controlled in turn by a central agency. That agency would have to license reliable firms and then see that instructions for producing the milk are carried out to the letter."

Corporation Formed

Because of the need for such rigid control, Drs. Petersen and Campbell made arrangements with a group of men interested in this work, who formed a Minnesota corporation—known as Protective Foods Corp.—for the purpose of making these discoveries available to the public.

Dr. Petersen points out that neither he nor Dr. Campbell is a businessman, so they turned the business decisions and procedures over to the corporation completely. The corporation must, however, live up to a rigid contract on use of the protective milk principles as they are developed by the two Minnesota scientists.

"There must be control of the vaccines used, control of the actual injections into the cow's udder, and control of processing the milk produced," Dr. Petersen says.

The Protective Foods Corp. has been in existence several months and is currently making arrangements with some of the large commercial milk companies to license them for the production of protective milk. Application of the principles to the animal health field will follow, according to corporation officials.

Protective milk for humans, containing antibodies for fighting a large number of disease organisms, probably will be bottled and distributed in fluid state. For livestock, however, the milk more than likely will be processed and fed like dry skim milk. This processing does not harm its protective qualities, Dr. Petersen says. And the powdered milk has been stored at room temperature for a year without losing its effectiveness.

Processing the milk this way would make a little go a long way since, for instance, the milk from one cow could give protection to several calves.

The commercial applications of the protective milk principles are still in the preliminary stages. However, if experimental results continue to be good, one day we may see special dairy herds set up for the primary purpose of producing protective milk—milk that may give humans and animals consuming it, immunity to a great number of diseases.

Pfizer to Award 20 Scholarships

NEW YORK—Twenty $250 scholarships are being offered in December to outstanding college undergraduate students with a background in 4-H Club work to stimulate their interest in choosing extension work as a career.

The awards, provided by Chas. Pfizer & Co., Inc., are being made for the first time and plans are to make a similar number of scholarships available each year.

Selection of the young candidates will be made by a national committee composed of federal and state extension service personnel. Each state having one or more extension courses may nominate four candidates who have shown outstanding ability in school and 4-H Club work.

Applicants for the scholarships must work out a teaching plan on the subject "A Plan of Work for an Extension Animal Health Program." Women students may draw up plans based on "Teaching the Relation of Animal Health to Human Health."

Dec. 14 is the deadline for filing applications with the federal extension service's personnel training branch and the selections committee will meet in Chicago shortly thereafter to choose the winners.

Scholarships will be granted for use during the senior year.

Applicants are required to have three or more years of successful 4-H Club membership and to have an interest in making a career of extension work.

It is expected that Pfizer representatives will present the awards in ceremonies to be held in the students' home states soon after the first of the year.

Distribution of the scholarships by states or extension service regions will be determined by the national selections committee, but the federal extension service has expressed a preference that no one state shall be awarded more than one scholarship in any year.

Beginning in 1957 the scholarships will be awarded in the spring.

J. Jerome Thompson, director of the company's agricultural sales division, said the new scholarships are designed to promote interest among farm youth in solving animal health problems which cost producers millions of dollars each year. The program also is intended to encourage gifted youngsters to remain in the extension service, particularly as county agents or veterinarians who will devote much time to improving the health of livestock and poultry populations.

Mass displays of Wayne Feeds were some of the best silent salesmen for Tri-State Feed & Seed, Shreveport, La., first place winner in Hatchery & Feeds nation-wide Merchandising and Display contest, Feed Dealer Class. E. Wallace Gray (inset) reports that a stack of 250 25 lb. bags of Wayne Chick Starter in the center of the sales floor more than doubled sales on Chick Starting Feeds. Also used were live displays . . . free chick days . . . feeder meetings sponsored jointly with Allied Mills . . . regular use of Wayne newspaper ads and the popular Barn-E-Gram customer magazine . . . "all proved a definite aid in locating and selling new customers," says Mr. Gray.

building your feed business"

There's a real story behind the prize-winning feed retailing operations of these five Wayne Feed dealers . . . a story told to the tune of a cash register!

The *success formula* they used is unbeatable . . . all five of these prize-winning Wayne Feed dealers agree that in order to have a successful feed business, two of the most important things you must have are:

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Second, superior merchandising with alert, hard-hitting retailing techniques . . . the kind they get with the wide array of Wayne merchandising aids and activities that are available to all Wayne Dealers. It can, and does, build a feed business.

More feed dealers every year are finding that Allied Mills goes "all-out" to help them merchandise top-quality Wayne Feeds in their areas. Feeder meetings, direct mail pieces, advertising layouts, display and merchandising ideas, all thoroughly tested and proven, are ready to back the dealer all the way. Carefully planned national advertising adds force to locally sponsored selling programs . . . all designed for just one purpose . . . helping the dealer build a better and more profitable feed business.

As these contest winners say, "there's no question about good merchandising and display paying off. But . . . you've got to have feeds that will do a job for your customers. That's why you can't beat *Wayne* for building your feed business!"

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Government— The Unwilling Competitor

By LLOYD N. CASE

EDITOR'S NOTE: The problems involved in relieving the government of activities which are in competition with the private grain trade are many and complex. The administration's efforts to restore to the free grain marketing system the business of buying, owning, storing and marketing grain are outlined in the accompanying article by Lloyd N. Case. The article is the text of a talk made by Mr. Case, director of the grain division, Commodity Stabilization Service, at the recent convention of the Western Grain & Feed Assn. at Des Moines, Iowa. Mr. Case has since resigned the government position effective Dec. 31 and will become vice president in charge of trade relations and research for the Burdick Grain Co., Minneapolis.

Under the operation of present price support programs, the government has become deeply involved in activities which are in direct competition and interference with the marketing functions traditionally performed by the grain trade.

The unprecedentedly large-scale entrance of government into the business of buying, owning, storing and marketing grain has grown to proportions which are a threat to the maintenance of our free grain marketing system. With the government assuming under present programs the responsibility for surplus production relative to the supplies that can be consumed at the levels of price support in effect, the fundamental function of market prices of continuously adjusting consumption and supplies with each other has been virtually suspended.

Although our administration has dedicated itself to a policy of minimizing government controls and placing increased reliance on our free enterprise system, it is difficult to see how we can have less government and more private enterprise in our farm programs as long as substantial portions of our crops are produced annually for sale to the government in the form of default of non-recourse loans, and as long as the government owns surplus stocks which are far in excess of any reserves which farmers and the trade find necessary or advantageous to carry.

The problems of storage and disposal of surplus production and of disposal of surplus accumulations not only overshadow all other problems, but interfere with their solution.

Producing for Storage

Price supports, instead of providing a floor under market prices to encourage orderly marketing and protect producers against unduly sharp declines in market prices, have become outlets for surplus production at higher than market prices. For wheat, nearly 40% of the crop has

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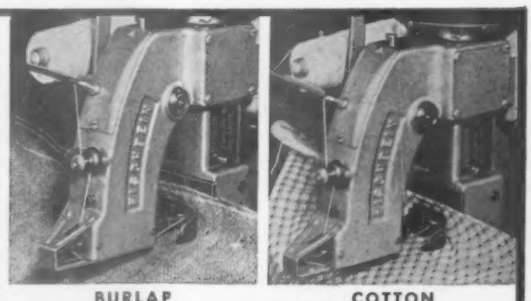

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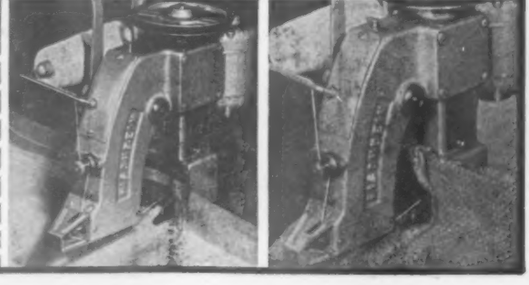

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been produced in the last four years for government storage, and in some major producing states as much as 75% of the wheat production has been delivered to the government.

In the case of corn, the percentage of the total crop delivered to the Commodity Credit Corp. in fulfillment of price supports is, of course, substantially smaller than in the case of wheat, amounting to only about 10 or 12% in years of normal production. However, with less than 20% of our corn crop moving off the farms where produced, the portion of our corn crop moving through commercial channels of trade has been reduced to such small proportions as to force commercial buyers of corn to increasingly rely on the government as a supplier of corn.

On Oct. 1, the beginning of the current corn marketing year, our carryover of corn reached an all-time high of 1,166 million bushels, practically all of which was owned or controlled by the government. Present indications are that by the end of the 1956-57 marketing year, our carryover of corn will have increased to the staggering amount of 1.4 billion bushels and that perhaps 1.2 billion bushels of these stocks will be owned by CCC.

Under present legislation, stocks of corn taken over by the government in fulfillment of price supports cannot be disposed of for domestic use at less than 5% above the current loan rate in effect, plus seasonal carrying charges. The principal exemptions from these restrictions are (1) sales for feed if such sales will not substantially impair any price support program and (2) sales of stocks which have substantially deteriorated in quality or as to which there is a danger of loss or waste through deterioration or spoilage.

Out-of-Condition Stocks

With price supports consistently above market prices, CCC sales for domestic use are practically limited to sales of out-of-condition stocks and it is these sales upon which commercial users have become increasingly dependent in meeting their current requirements.

In making CCC stocks of corn available to domestic users at market prices because of quality deterioration or unsuitability for continued storage, the criteria for making such determinations are difficult to define in objective terms to insure a uniform and equitable basis for such sales in all areas and locations of storage.

Although the trade has taken the initiative in cooperating with USDA towards developing a practical method by which the kind and extent of deterioration of the feeding value of stored corn may be measured to provide an objective and uniformly applicable procedure for declaring corn as being unsuited for continued storage, the fact remains that CCC is maintaining in bin-site storage identity-preserved corn until the corn so stored has deteriorated in quality or until it can be sold at 105% of loan rate in effect—whichever occurs first.

Since disposal at the statutory minimum prices can rarely be effected, domestic sales of CCC corn are, for all practical purposes, limited to sales of deteriorated grain. Such sales, to the extent that they consist of bin-stored grain, are made at heavy losses to the taxpayer, and with the government having no system of accounting for these inventory losses, they are absorbed in the whole operation of price supports.

When grain is placed under a commingled warehouse receipt, the warehouseman bears the losses representing shrinkage in weight and deterioration in quality values. Thus, in the case of standard storage, the government is fully protected, and to the extent that CCC corn is stored in country warehouses and terminal positions, sales due to deterioration do not result in losses to CCC. Although the bulk of the sales of CCC corn has so far consisted of corn stored under Uniform Grain Storage Agreements, it is difficult to see how, in the absence of an inventory management program designed to rotate stocks, eventual large-scale disposals of CCC bin-site stored corn can be avoided.

Price Depressing Effects

The failure of CCC of managing its inventory so as to maintain the quality value of its stocks not only threatens to result in losses which could be avoided if a policy of rotation of stocks were followed, but the price depressing effects of sales of deteriorated corn render the price support program less effective and discourage the building up and maintenance of normal reserve stocks under private ownership.

However, irrespective of whether corn is sold off bin-sites, with the government assuming the realized losses, or whether corn is stored in standard grain storage facilities, with the warehouseman responsible for deterioration in quality value, the timing and volume of sales of CCC-owned corn for domestic use are, in the absence of an inventory rotation pro-

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A tested and dependable mineral supplement for poultry, hogs and all farm animals. Ryde's Nutritive Minerals promote faster growth, greater productivity and resistance to disease.

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- Handles complete processing fast and in big volume.
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Manufacturers of FORDS HAMMERMILLS • Molasses Blenders, Vertical Mixers • Corn Shellers • Pneumatic Grainvayors.

gram, dependent upon the occurrence and extent of quality deterioration and, therefore, beyond the control of the government.

At the present time, CCC is holding more than 400 million bushels of corn taken over from the 1953 and earlier crops, and most of this corn will have to be disposed of before long to prevent losses resulting from quality deterioration. Although every effort is being made by USDA to make determinations as to storability on the basis of condition of the grain rather than on the basis of years of storage, we cannot ignore the fact that corn deteriorates in quality in time. USDA is holding down sales of such corn to a minimum in order to avoid price depressing effects during the harvest period. At the same time, however, the eventual need for large-scale disposals is discouraging commercial buyers from building up stocks at a time when the market is in greatest need of support.

Recognizing the need for greater latitude on the part of CCC in the management of its commodity inventories, Congress amended in 1954 the Agricultural Act of 1949, authorizing CCC to sell domestically in the interest of the more effective and efficient conduct of its operations commodities because of age, location, or questionable continued storability, and directing the CCC to offset such sales by such purchases of commodities as the corporation determines are necessary to prevent such sales from substantially impairing any price support program.

Authority Not Utilized

Although the law clearly authorizes CCC to adopt a policy of rotation of inventory by disposing for domestic use stocks of grain threatening to deteriorate because of age and, if it is deemed necessary, offsetting such sales by purchases of new-crop storable grain, we have so far not availed ourselves of this legislative authority. Instead, a policy continues to be followed of storing bin-site corn until deterioration threatens.

There are, of course, reasons for our failure of implementing a policy of rotation of stocks. While it is not difficult to dispose of CCC stocks of corn, the task of preventing local market prices from declining by making offsetting purchases of corn of storable quality poses problems which represent serious obstacles in the way of implementing such a policy. If, for instance, we would attempt to rotate our stocks by disposing of bin-stored corn three or more years old and offsetting such sales by purchases at a tributary terminal market, the identical corn so disposed of would, in all likelihood, find its way into renewed CCC ownership through the process of upgrading. This problem is an illustration of how administrative difficulties can be an insurmountable deterrent to implementing an otherwise soundly conceived idea sanctioned by legislation.

Storage Problem Will Ease

Although the magnitude of the surplus accumulations in government ownership forced the CCC to greatly expand its own storage facilities to an all-time record capacity of about one billion bushels, there are strong indications that the storage problem will materially ease next year and that, instead, the problem of returning to the private trade its traditional storage functions will soon have to be dealt with. With the Soil Bank program taking hold on a substantial scale for the crops of 1957, the alternative of storing CCC grain in government-owned bins versus storage in standard commercial facilities will become a pressing issue next year.

The USDA's actions, when these issues come to the fore, will be guided by the position that the grain storage facilities owned by the government are essentially emergency or stand-by facilities and that, once the emergency has passed, priority will have to be given to the use of commercial warehousing facilities over the use of bins.

Such assurance, however, will not solve all of the problems which the grain trade will have to meet as our inventories are being reduced to more normal proportions. This particularly applies to wheat, production of which may be expected to fall below domestic and export requirements next year. Such a development, which is likely to extend over a period of years, will call for unavoidable trade readjustments in storage and marketing operations from performing services for the government to competing for the needs of producers.

Consistent with a policy to utilize in the operation of CCC programs the normal and customary facilities and channels of our private marketing system, we have encouraged the trade to set forth proposals designed to relieve the government of activities which are in competition with private

(Continued on page 58)

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KRACO is unadulterated! Just pure whey—nothing added, nothing taken away. Contains all the whey nutrients: lactose (minimum 65%), milk protein (12%, mostly lactalbumen), milk minerals and vitamins plus unidentified growth factors.

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"I had a talk today with the boss about more money, but I wouldn't lend him any."

Minnesota Test Favors Stilbestrol Given in Feed

ST. PAUL—Feeding stilbestrol to steers appears to be more profitable than implanting the hormone-like substance in the animals, according to University of Minnesota scientists. They based this report on final results of 1956 beef feeding trials at the university's Rosemount Agricultural Experiment Station.

Following up an earlier report on the study, Dr. W. J. Aunan and Dr. A. L. Harvey said that stilbestrol-implanted steers brought an average of $1 per cwt. less than stilbestrol-fed steers at market time, because of more unfavorable side effects—high tail heads and low backs—on the implanted steers.

The average profit for stilbestrol-fed steers was almost $9 per animal more than for implanted animals, the scientists found in this experiment.

Except for the side effects, there was practically no difference in the results between feeding and implanting the stilbestrol under the skin in back of an animal's ear. Both treatments produced almost equal daily gains, in each case more than 15% greater than when steers received no stilbestrol. Steers on both stilbestrol treatments reached market weight at the same time and averaged the same rate of gain, amount of feed per pound of gain and total feeding cost.

The feeding period was 112 days. Stilbestrol-fed animals received 10 milligrams of the material daily in the protein supplement. The implanted steers received 36 mg. in one treatment at the start of the feeding period.

Based on these findings, Dr. Aunan and Dr. Harvey said they favor feeding stilbestrol rather than implanting it.

So far, they said, Minnesota tests on implanting have been conducted only at the 36 mg. level. They said further tests may indicate whether lower levels would produce good gains but avoid unfavorable side effects which resulted in this experiment.

CSC PAYS DIVIDEND

NEW YORK—A dividend of 25¢ a share was declared Nov. 26 on the outstanding common stock of Commercial Solvents Corp., payable Dec. 26, 1956, to stockholders of record at the close of business on Dec. 7. The previous payment was 25¢ a share on Sept. 28, 1956.

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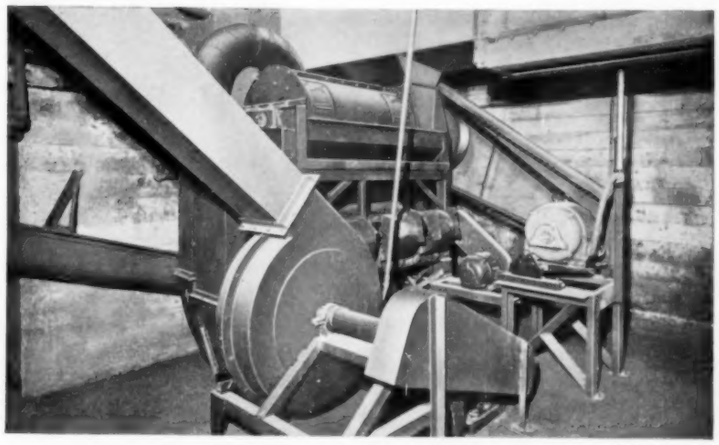
TRIUMPH No. 1200* CORN SHELLER CLEANING ATTACHMENT AND COB BLOWER

*Patent Applied For

View at right shows one of the two simple, proven Triumph No. 1200 Corn Shelling systems at the world famous Anderson Truck Terminal, Maumee, Ohio. These compact systems shell the corn; remove and blow away husks, silk and small trash particles with the cobs; discharge up to 1200 bushels of air cleaned shelled corn per hour. Six more Triumph No. 1200 Corn Shellers were installed by Anderson during 1955.



Listed below are just a few of the plants that already have installed two or more TRIUMPH No. 1200 CORN SHELLING Systems

Saginaw Grain Co.....Saginaw, Mich.
Anderson Truck Terminal.....Maumee, Ohio
Wolfe Grain Co.....Shipshewana, Ind.
Cooperative Mills, Inc.....Seaford, Del.
Farmers Grain & Coal Co.....Mason City, Ill.
Clinton County Farm Bureau..Wilmington, Ohio

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Semi-trailer Loaded with 22 Tons of Ear Corn is Dumped and the Corn Shelled and Air Cleaned in 30 Minutes with a

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"Hens lay more eggs, l

Some of the results of many trials at experiment stations and poultry farms

1 AUREOMYCIN increases egg production 6.5% in high producing layers

In a trial at *Texas A & M College* 200 White Leghorn hens were divided into two groups of 100 hens each. After a one-month adjustment period, production averaged 70% in both groups. The experiment was then started with one group receiving AUREOMYCIN at a level of 5 grams per ton of feed, the other at a level of 50 grams of AUREOMYCIN chlortetracycline per ton of feed. Over the next ten-month period, the group of hens receiving the higher level of AUREOMYCIN showed an average increase in egg production of 6.5% over that of the group receiving the lower level of AUREOMYCIN. Each dollar spent for AUREOMYCIN produced 53 extra eggs.

2 AUREOMYCIN brings hens out of laying slump, increases egg production 29%—hatchability 26%

In a trial in *Texas*, 6,000 New Hampshire pullets were divided into 4 pens of 1,500 birds each. Pullets reached 50% production at six months of age and continued at this rate for 3 months when the rate of production fell off sharply to 37%. AUREOMYCIN at the level of 200 grams per ton of feed was added to the ration in 2 pens for a period of 16 days. These two pens made a rapid recovery showing 29% increase in egg production over the 2 pens not receiving AUREOMYCIN during this 16-day period. This test also showed a 26% increase in hatchability from the feeding of AUREOMYCIN.

3 AUREOMYCIN increases early egg production, maintains late production at a higher level

In a 12-month trial in *Utah*, 600 White Leghorn hens were placed on a feed containing 100 grams of AUREOMYCIN chlortetracycline per ton with another 600 White Leghorn hens receiving no AUREOMYCIN supplementation used as controls. During the trial, extremely cold weather stressed the birds on several occasions. The hens receiving AUREOMYCIN showed an increased *early* egg production and maintained *late* production at a higher level than the hens receiving no AUREOMYCIN. Over a one-year production period, the controls averaged 54.4% production and those receiving AUREOMYCIN averaged 60.2% production. The 600 hens receiving AUREOMYCIN—at an approximate extra feed cost of $276—produced 1476 *more dozens* of eggs. With eggs selling at 35¢ per dozen, that means 517 more dollars, or an extra return over the cost of AUREOMYCIN of $241.

4 AUREOMYCIN increases egg production 18%, cuts feed costs 4½¢ per dozen eggs

In a 196-day trial in *Alabama*, one group of 837 New Hampshire breeding hens received no AUREOMYCIN in their feed. Another group of 525 hens received AUREOMYCIN at the level of 50 grams per ton of feed. The group of hens receiving AUREOMYCIN showed an increase of 18% in egg production over the controls, averaging 14 more eggs per hen for the 196-day period. Hens fed AUREOMYCIN required 1.3 pounds *less* feed to produce a dozen eggs. With feed costs at $80 per ton, this means a saving of 4½¢ per dozen eggs. Eggs from the group fed AUREOMYCIN averaged 5% more in weight.

5 AUREOMYCIN increases egg production 16.3% in the presence of CRD

In another trial in *Georgia*, 2,916 New Hampshire breeding hens showing clinical symptoms of chronic respiratory disease were divided into two groups. One group of higher-producing hens continued on the regular ration without AUREOMYCIN supplementation. The other group of lower-producing hens received AUREOMYCIN at the level of 100 grams per ton of feed. The group fed AUREOMYCIN started to improve immediately and, over the next 45 days, jumped from a per cent egg production 7.4 *below* that of the controls to a per cent egg production 8.9 *above* the controls—an improvement in per cent egg production of 16.3.

6 AUREOMYCIN increases egg production 18% in hot weather—produces 47 more eggs per 100 pounds of feed

In a 100-day trial at *Arizona College*, in temperatures up to 103 degrees the addition of AUREOMYCIN at a level of 50 grams per ton of feed to the ration of White Leghorns *increased egg production 18%* . . . and produced 47 more eggs per 100 pounds of feed. In another hot weather test of 112 days at Arizona, hens laying at the rate of only 27.7% but showing no symptoms of disease were placed on a ration containing 50 grams of AUREOMYCIN chlortetracycline per ton. This increased egg production 47%—produced 74 more eggs per 100 pounds of feed.

7 AUREOMYCIN increases egg production 39% in winter months in low producing hens

In a trial at *Iowa State College*, approximately 120 New Hampshire pullets were divided into 12 groups. These birds were fed, during a four-month period, a ration without AUREOMYCIN supplementation. During this period, the decline in egg production was unusually rapid. When AUREOMYCIN was added at a level of 100 grams per ton of feed to the rations of the 8 lowest-producing groups, egg production improved immediately. During the 60-day period following the incorporation of AUREOMYCIN in the feed, these 8 groups showed an average increase in egg production of 39%.

8 AUREOMYCIN maintains high egg production over a longer period, produces 13,000 more chicks per 1,000 hens

In a trial in *Georgia*, one group of 630 New Hampshire breeding hens was placed on feed containing AUREOMYCIN at the level of 100 grams per ton. Another group of 630 hens received no antibiotic supplementation. As growing pullets, both of these groups of birds had suffered from CRD. The level of 100 grams of AUREOMYCIN chlortetracycline led to an *increased early egg production* and was responsible for maintaining *late production at a higher level*. Over a 11-month period, the group of hens receiving AUREOMYCIN showed a *10% improvement in egg production over the controls*. Results also showed a 5.4% increase in hatchability of the eggs from hens fed AUREOMYCIN, resulting in 13,048 more chicks per 1,000 hens.

...onger, on less feed"

...that's your profit sales message when your layer and breeder feeds contain the **right** amount of the **right** antibiotic: Aureomycin

Many feed manufacturers *have been using* this sales message successfully for many months... and bringing EXTRA RETURNS to farm flock owners and to producers of market and hatching eggs.

The right amount of AUREOMYCIN in layer and breeder mashes provides all these *extras:*

1. More eggs over a longer period
2. More *early* and *late season* eggs
3. More eggs per 100 lbs. of feed
4. More eggs in presence of disease
5. More eggs in times of stress
6. More chicks from increased hatchability

Each and every one of these advantages has been proved in the Experiment Station and poultry farm trials described on the opposite page. These trials are a few of the many that have been made with AUREOMYCIN in layer and breeder feeds.

A special leaflet on AUREOMYCIN for layers is now available for use by feed manufacturers. Write for free supply. American Cyanamid Company, Animal Feed Dept., 30 Rockefeller Plaza, New York 20, New York.

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AUREOMYCIN® for more dollars, from more eggs

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potency a problem

The fat-soluble vitamins have made trouble for feed manufacturers because they oxidize and rapidly lose potency. But since the introduction of Micratized vitamins, the problem has been largely solved. Micratized vitamins have a high degree of stability. They can be depended on to deliver the potency called for by your formula.

forget about assay failures

Micratized vitamins have been proved in test after test, and the results are on record. Today more than 50 colleges and State experiment stations are using Micratized vitamins in experiments where vitamin potency must be certain if results are to be valid.

Reports of a long list of experiments by independent agencies show that Micratized vitamins are the most stable . . .

1. In the presence of trace minerals
2. In the face of any humidity
3. In spite of extreme temperatures
4. In spite of long storage
5. Even when pelleted

Micratized Vitamins A and D deliver the potency specified by your formula right to the digestive tracts of poultry and livestock. There is no need to overfortify and no danger of underfortification. Digestibility has been proved in scores of independent tests. Dispersion is complete.

Why take chances with today's narrow profit margins? Fortify with Micratized vitamins. Their effectiveness is a matter of record.

For further information about Micratized vitamins, send for the Nopco Nutrition Guide

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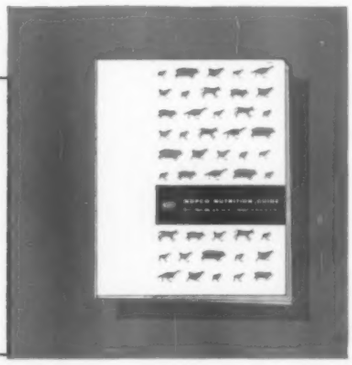

Basic producers of Micratized Vitamins A and D, niacin, calcium pantothenate, choline chloride, and other products

California Plant Goes Under Ground To Solve a Problem

SALINAS, CAL.—What do you do when a big highway separates your plant from the railroad on which you depend for shipments and deliveries?

A California firm found itself in this situation and decided that the practical solution was to go below ground and move materials underneath the highway.

When the California State Highway Department widened coastal highway 101, the Eckhart Seed Co., producer of seed and feed products, found itself on the wrong side of the highway.

The Southern Pacific Railway tracks, upon which the company depended for much of its shipments and deliveries, was on the opposite side of the four-lane divided freeway, fenced off from the Eckhart plant. Before the new highway came through, company trucks could easily drive back and forth across the two-lane road, but now it would mean almost a mile of driving to a crossing lane to make pick-ups at the dock on the railroad.

Eckhart solved the problem by constructing a tunnel underneath the highway, with a belt conveyor connecting the dock with the plant.

Now seed and grain supplies are sent from this dock onto a chute which descends to the tunnel; the materials move through the tunnel and then are carried upward by another inclined belt inside the plant itself.

Deliveries of materials to the plant are thus made more speedily, with less wear and tear on trucks and manpower.

As shown in the first picture, the Southern Pacific tracks are on one side of the highway while the Eckhart Seed Co. plant at Salinas, Cal., is on the other side of the divided, four-lane, fenced-off freeway. The second picture shows the tunnel under the highway through which materials coming in by rail are conveyed to the plant. Part of the railroad dock may be seen at the extreme right of the first photo.

LONFOSCO Soft Phosphate with Colloidal Clay

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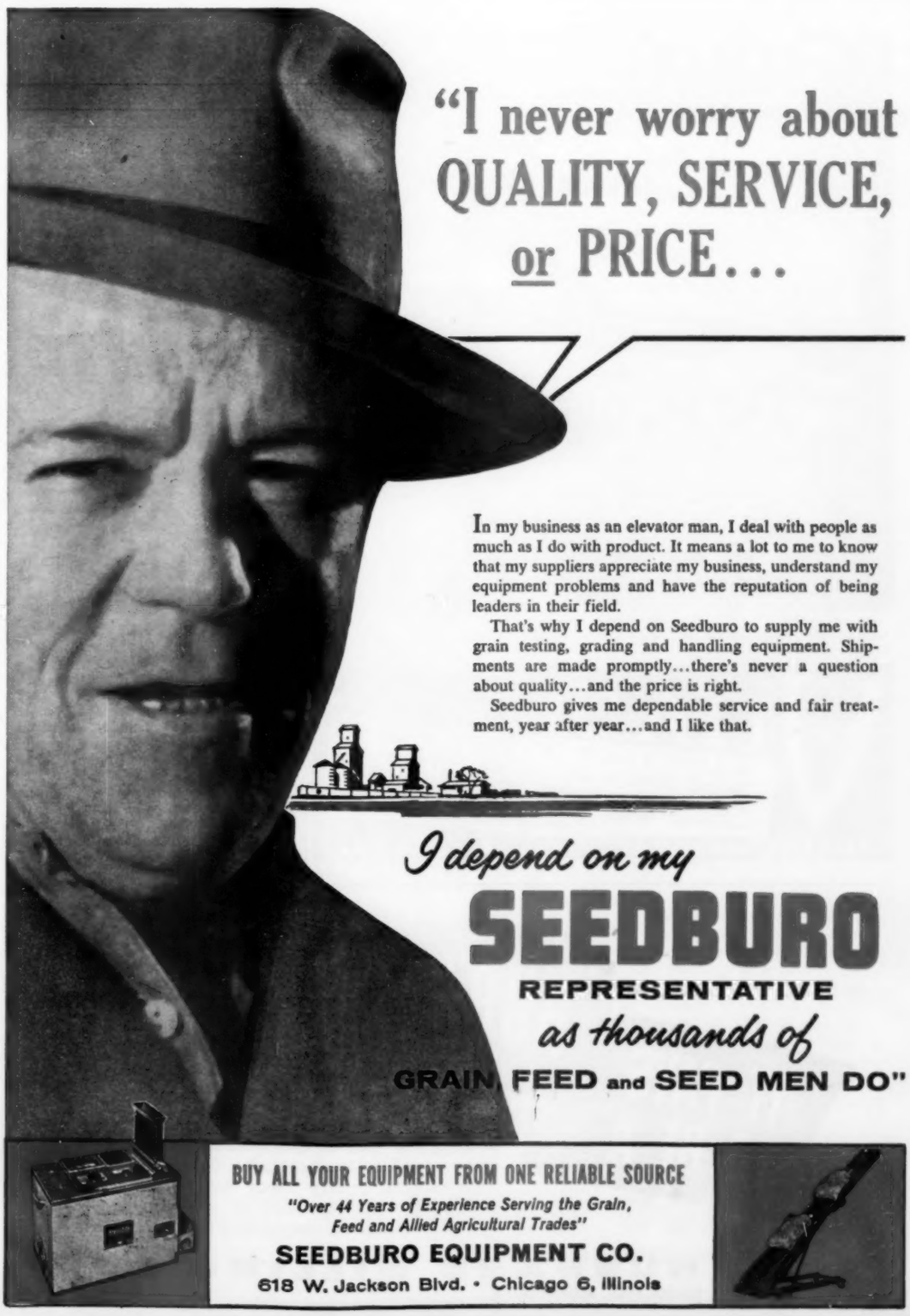
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In my business as an elevator man, I deal with people as much as I do with product. It means a lot to me to know that my suppliers appreciate my business, understand my equipment problems and have the reputation of being leaders in their field.
That's why I depend on Seedburo to supply me with grain testing, grading and handling equipment. Shipments are made promptly...there's never a question about quality...and the price is right.
Seedburo gives me dependable service and fair treatment, year after year...and I like that.
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MINERAL FEED
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TRACE MINERALS
Contains important mineral elements blended with COBALT, MANGANESE, ZINC, BORON, IRON, COPPER, STABILIZED IODINE and other trace minerals in carefully calculated proportions to supply necessary mineral nutrition.
Also Contains
● LIQUID BLACKSTRAP MOLASSES ● IRRADIATED YEAST (Source of Vitamin D_2)
We Sell Thru Dealers and Jobbers Warehouses from Coast to Coast
By the TON, TRUCKLOAD, or CARLOAD
Write Today Regarding Our Dealer or Jobbing Proposition
FARMERS FRIEND MINERAL CO. NAPOLEON, OHIO

Here is a packaging line at Crete Mills, used for packing crumbles, pellets and mash at a rate of 18 50-lb. paper bags a minute. The line includes a St. Regis settler-conveyor which made it possible to reduce bag size.

Nebraska Feed Plant Takes Steps to Improve Efficiency of Packaging Operation

Many feed manufacturers, in these competitive times, are constantly seeking methods of improving their production efficiency. And among the important areas where improvements can be made are materials handling and packaging.

Taking certain steps to increase the efficiency of packaging operations can add up to some pretty significant savings as well as increased production and better packages, it has been found at Crete (Neb.) Mills.

For one thing, this feed manufacturer notes, more than $2,000 is being saved annually through a 1½-inch reduction in bag length in multiwall bag packaging operations.

The mill installed an automatic settler-conveyor and an automatic thread-saver to facilitate packaging of the various forms of feed. Since installation of the settler-conveyor, bag size has been reduced from 15x3½x35 in. to 15x3½x33½ in.

The reduction of 1½ in. in bag length, it is pointed out, results in a saving in bag cost of 9¢ a ton and an annual saving of more than $2,000. The plant is packing crumbles, pellets and mash at a rate of 18 50-lb. bags a minute on the line equipped with the settler-conveyor, which was supplied by the St. Regis Paper Co.

In addition to smaller bag size, improvements with the addition of new equipment include increased production, better closures and stronger, neater-appearing bags, the mill explains.

Settling is completed while the bag is being conveyed from beneath the spout, permitting settling time of 4 to 5 seconds on a 50-lb. bag without slowing production, the engineers say. The conveyor also holds the bag top in shape and makes sewing easier. The bag moves from the settler to the sewing machine conveyor without being lifted, and no hand-settling is needed with extremely bulky materials, allowing the operator more time for placing bags on the filling spout. Properly packed bags resist breakage better than loosely packed bags, and it's possible to pack with 3 to 5 in. of free top, compared with as much as 6 to 8 in. of free top previously.

Another thing pointed out in connection with this operation is the fact that there is no need to carry a second, larger bag size especially for crumbles as compared with pellets or some mashes.

Thread Saving

The packaging improvement picture at Crete Mills includes thread saving, too. The mill has put thread savers on three of its packaging lines. One line is supplied by a duplex scale and is operated by two men, handling 18 50-lb. bags a minute. Two other lines, each supplied by a single-bucket scale and each operated by one man, pack 6 to 8 50-lb. bags a minute.

How does the thread saver work? It's designed for attachment to a sewing head and starts and stops the sewing machine automatically. This, it's explained, holds thread waste to a minimum. Average thread waste on many packing operations is said to run as high as 8 in. But with the thread saver, Crete Mills says, the length of the thread tail on the lines has been held to 3 in. on one end and 2 in. on the other. Easier bag closing with the installation of this piece

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of equipment has increased production by one to two bags a minute on each of three lines, for an output gain of up to 10%, according to the company. Bag appearance is improved by eliminating hanging threads.

As for direct material savings, it's figured this way: Tape, thread and filter cord closing materials cost about 17¢ per inch per 1,000 bags, and a saving of 5 in. of closing materials amounts to more than 3¢ a ton on 50-lb. bags and more than 1½¢ a ton on 100-lb. bags.

Still another recent addition to the Crete operations is a St. Regis micro fog lubricator. This was installed after experiencing some heating of the sewing head at high speeds. The result, according to Crete officials, has been fewer breakdowns of equipment and thus less downtime.

The lubricator works by maintaining a positive air pressure on the sewing machine housing during the sewing operation. This prevents entry of abrasive dust particles, reducing wear. Micron-sized particles of oil coat the moving parts, lubricating them and preventing corrosion when the machine is idle.

Waterloo Mills Co. To Modernize Plant

WATERLOO, IOWA—An extensive development program which will increase production capacity and output efficiency of the Waterloo Mills Company's plant here has been announced.

The new facilities will increase mixing and pelleting capacity approximately 2½ times, company spokesmen said. This will be accomplished by replacing present mixing equipment and pellet machines with larger and more modern types. A combination molasses and animal fat mixer is being added. This machine will incorporate either or both of these liquids in pellet, crumble and mash feeds, as desired.

It is expected that the new equipment will be in operation by Feb. 1, 1957. Plant operation will continue during the change-over by coordinating removal of old equipment and installation of new equipment with production demands.

The Waterloo Mills Co. has been in operation since 1924. The company has manufactured feed under the Clear Quill brand since 1939.

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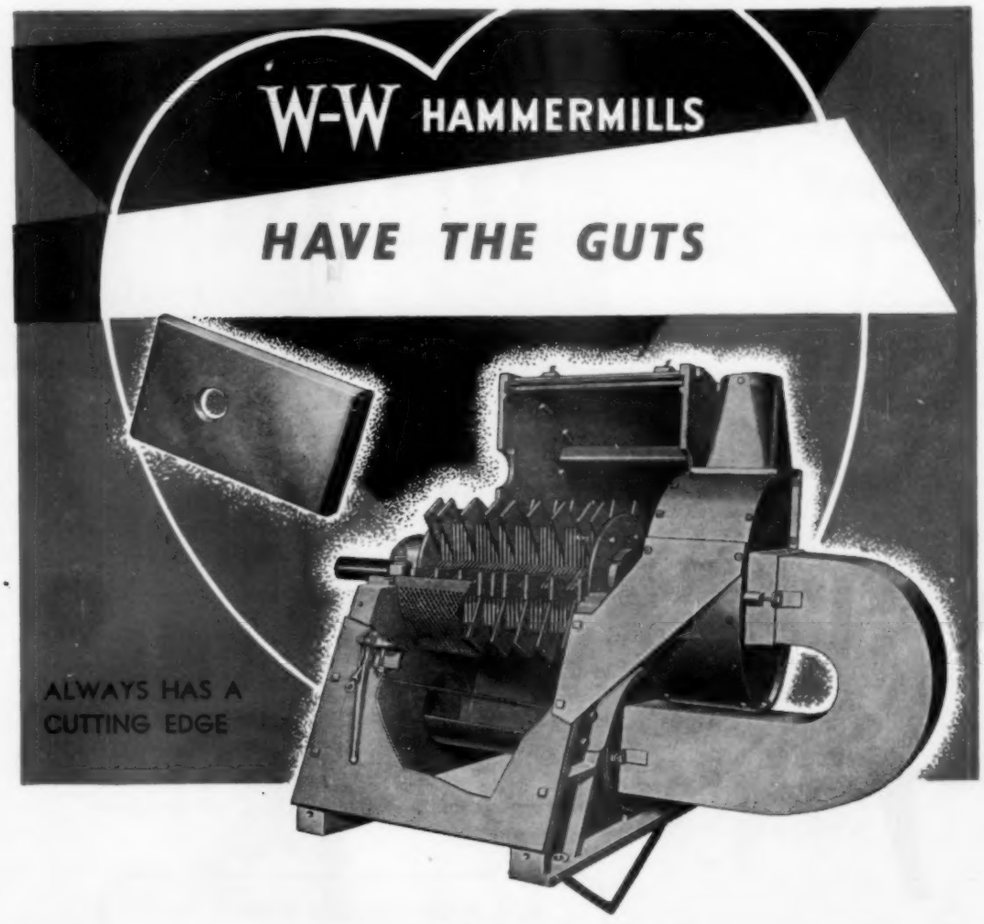

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Maryland, Delaware Specialists Discuss Poultry Nutrition, Disease Development

SALISBURY, MD.—What will the newest broiler feeds be like, and what are some of the newest problems and developments in poultry diseases?

Six of Maryland's and Delaware's poultry disease and nutrition specialists recently put their heads together to give Delmarva broiler growers, feed men, hatcherymen and others some of their ideas in the poultry field.

One of the specialists, Dr. Gerald F. Combs of the University of Maryland, said regarding nutrition that "we have reached the realization that things have started to fit together." Researchers in poultry nutrition are getting a more complete picture and understanding of feed make-up, he indicated.

The "common sense" approach is being used, Dr. Combs indicated. For one thing, he noted, it has been found that protein in a feed must be increased as energy is increased. This relationship, it was noted, is common sense.

Dr. Combs also pointed out that two birds can have the same growth rate on two different feeds and have different carcass composition.

POULTRY SPECIALISTS—Six Maryland and Delaware research workers in the poultry field recently gave Delmarva broiler growers, feed men and others information on some of their findings. Left to right are Dr. I. M. Moulthrop, head of the Salisbury laboratory, Maryland Livestock Sanitary Service; Dr. James Porter, head of the Merck & Co. experimental poultry farm, Cheswold, Del.; Dr. E. F. Waller, professor and head of the department of animal and poultry industry, University of Delaware; Dr. M. S. Cover, poultry pathologist, University of Delaware; Dr. A. S. Cosgrove, Delaware Poultry Laboratories, Millsboro, Del., and Dr. Gerald Combs, nutrition specialist, University of Maryland.

Higher Fat Seen

The new feeds will have higher levels of fat if conditions continue favorable for fat price-wise, Dr. Combs predicted.

It is not now possible to pellet feeds containing high levels of fat, he noted. He said it may not be necessary to pellet these feeds.

At present prices, inclusion of fat makes a favorable feed price situation, Dr. Combs continued, and since it takes less volume to do the job, there is less feed to haul, providing some further saving for poultrymen.

He also said that with more fat in the ration in place of other energy sources, it is easier to balance the higher energy feeds.

The Maryland broiler experimental farm is now growing a flock of chickens with ration containing 19% total fat.

Dr. Combs also said that disease resistance may be related to the diets of chickens. Proper amino acids are related to disease control. Diets will be responsible for helping birds be disease-resistant.

Disease Developments

Dr. M. S. Cover, poultry pathologist at the University of Delaware, said that a disease to look for in the near future in Delmarva is infectious hepatitis, which he said has been found in scattered sections of the country. He indicated that layers seem to be the main victims. Egg production falls 20 to 30% and mortality ranges from 2 to 3%.

The symptoms, Dr. Cover said, are comb and head discoloration and an enlarged liver that breaks up when handled. There are also fatty changes in the tissue of the liver.

Dr. Cover said chronic respiratory disease is the biggest problem. Recently, he continued, research workers have learned a good deal about the nature of the disease.

It has been learned that CRD is caused by PPLO (pleuro-pneumonia like organism) plus a secondary infection. In the laboratory it has been impossible to reproduce a case of CRD with PPLO alone, he said.

It is not the single organisms; it is a group of secondary invaders. There is a different group of organisms involved in each case of CRD, thus causing complicating factors in CRD.

It has been found that egg transmission from the hen to the chick does occur and is a big factor in spreading this disease. PPLO is pres-

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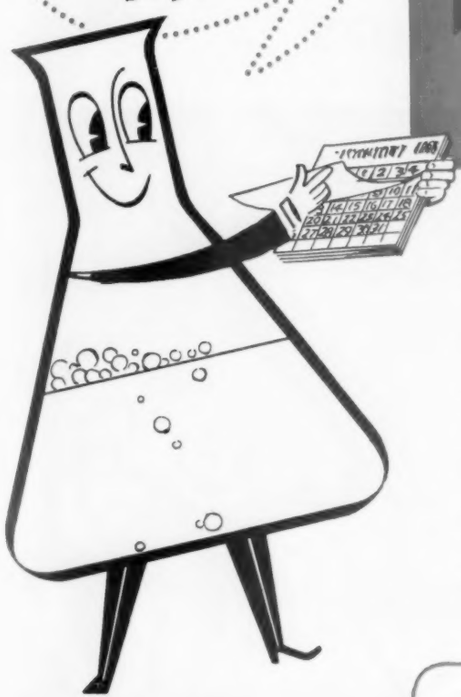

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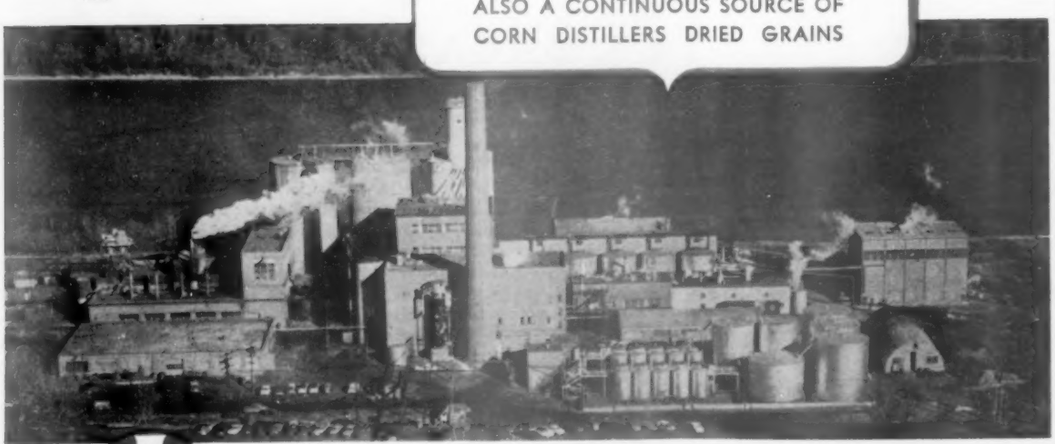

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ent throughout nature—birds and animals have the disease organism.

Now that a laboratory method of growing PPLO has been discovered, more is being learned about it, said the pathologist. Also aiding researchers to make headway is the serological test whereby a chicken can be tested quickly and the results shown on a plate or in a tube. The test can be carried right in the field. The serological test has shown that chicks from positive flocks have positive tests for the first four weeks. After the four-week period they may automatically become negative. Chicks from negative parents are negative during this first four week period.

Should any stress occur in the positive chicks such as vaccination, poor management, failure to stay on feed, or chilling, it is likely the chicks will develop symptoms of CRD.

Dr. Cover said the negative chicks do not come down with CRD due to such a stress. This explains why some flocks suddenly come down with CRD and others do not. This is why many chickens get sick after vaccination.

How much CRD is there is the Delmarva area? Dr. Cover said the serological test has been made on 25 replacement flocks. Three were found negative, six positive and the other 16 were partially infected.

Next Dr. Cover discussed "big head" disease. He said it is not definite what causes the disease. It is the opinion of some that big head is a condition caused by PPLO.

In his discussion of synovitis, Dr. Cover said: "There is no question in my mind that it is an important disease today." However, he said, research has not been able to pin it down as a disease transmitted from bird to bird. Its symptoms are swelling of the hocks and tendon sheaths. These swellings contain a creamy exudate. It causes lameness and crippling. The disease affects adult birds as well as young ones and it appears in all breeds of chickens and turkeys.

Dr. Combs and Dr. Cover spoke to a group of poultrymen in Salisbury, Md., during an educational program sponsored by Delaware Poultry Laboratories, Millsboro, Del.

Questions Answered

After Dr. Combs and Dr. Cover had spoken, several questions came from the floor. On the panel were Dr. E. F. Waller, professor and head of the department of animal and poultry industry, University of Delaware; Dr. James Porter, head of the Merck & Co., Inc., poultry research farm, Cheswold, Del.; Dr. I. M. Moulthrop, head of the Salisbury Laboratory of the Maryland Livestock Sanitary Service, and Dr. A. S. Cosgrove of Delaware Poultry Laboratories.

One of the questions was whether vitamin B_{12} should be fed in the ration. Dr. Combs said it would be valuable in a formula lacking this vitamin.

Asked about new information on hemorrhagic disease, Dr. Porter said that there is no new treatment and that scientists still do not have all the answers on the cause.

On the question of whether fat is more important in the starter or finisher, Dr. Combs said that it should be used in both.

Can synovitis be spread by vaccine? Dr. Cover said it is not likely.

When high fat levels are used, what can be done about pigmentation? Dr. Combs replied that not enough pigmenters have been tried yet. He said that corn products are the best that can be used to date. He said he was not sure that the housewife wants yellow birds.

Asked about high-fat feeds for laying flocks and whether it hurts hatchability, Dr. Combs said there are no results available. He said he would guess that hatchability would not be affected if the ration was in balance.

Dr. Moulthrop, in reply to a question of how the service man can diagnose the secondary infection of CRD, said that the lab test is the only way, and then it is sometimes difficult.

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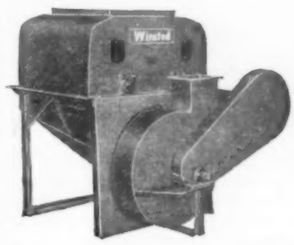

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No. 5602—Conversion Kit

Instant change-over of dust seed treaters to handle ready-mixed liquid seed treating chemicals is now possible through use of a new conversion kit manufactured and sold by Panogen, Inc. Chief advantages claimed for the kit are that it requires only

a few minutes to install, converts all standard dust treaters so they can be used for applying liquid Panogen, permits accurate regulation of dosage and eliminates dust. The kit includes all the components needed to convert a dust treater to Panogen operation. Each kit is accompanied by a simple chart for computing the correct rate of flow so that proper dosages are easily maintained. The chemical will not freeze or burn. Secure more complete details by checking No. 5602 on the coupon and mailing it.

No. 5605—Corn Sheller Book

A new instruction and repair parts book has been issued on the Joliet Big 4 Shuck Corn Warehouse Sheller by the Belle City Manufacturing Co., Inc. The book has exploded view drawings of all assemblies, clearly identifying parts and showing their exact location. All parts in the drawings are numbered to correspond with code numbers in the parts list, making it easier to expedite ordering. The book also contains detailed instructions for setting up, installing and operating Joliet Big 4 Warehouse Sheller. The company will make available the book to all operators of the sheller. Merely check No. 5605 on the coupon and mail it to this publication.

No. 5604—Feed Bodies

The Henderson Manufacturing Co. has announced the addition of two new bulk bodies in the 1957 Chief Feedmaster line. These are the model B-200 combination bag and bulk body (pictured here) and the model B-300 twin auger conveyor all enclosed bulk

unit. Company officials say that the B-200 offers unique "drop doors" and compartments for selective unloading as well as full-opening "bulk" doors shown here for self-cleaning, self-unloading of bulk. Both models have the at-the-farm self-loading feature which allows the operator to deliver feed to the farm and pick up bulk grain for the return trip. All models are available in lengths for one- and two-ton pickups to 35 ft. transports and deliver into 19-ft. high bins or higher. Check No. 5604 on the coupon and mail it to secure more complete details.

No. 5603—Supplement

An Antibiotic supplement, called by the trade name Auropep Crumbles, is being marketed by the animal feed department of the American Cyanamid Co. The product is recommended as a supplement to home grown and commercial feeds of swine, cattle and sheep to improve growth rate, increase feed efficiency, and suppress secondary bacterial infections during periods of stress. The antibiotic supplement also is claimed to prevent and reduce losses due to such specific diseases as bacterial enteritis in swine, bacterial diarrhea in dairy and beef calves and enterotoxemia in sheep. Auropep is sold in 50-lb. bags containing extracted Aureomycin meal and fermentation solubles, diatomaceous earth and alfalfa meal; and each pound contains at least two grams of the antibiotic. It can be spread on top or mixed with each day's ration and even distribution is claimed. Secure more complete details by checking No. 5603 on the coupon and mailing it to Feedstuffs.

No. 5606—Antibiotic

Terramycin Egg Formula is the trade name of a completely soluble product administered in poultry drinking water, according to the manufacturer, Chas. Pfizer & Co., Inc. Recently accepted by the U.S. Food & Drug Administration, the formula is a blend of the broad-range antibiotic Terramycin; vitamins A, B_{12}, K, D_3, E, riboflavin, niacinamide and calcium pantothenate. It is being marketed in 1-lb. and 5-lb. canisters. Company spokesmen state that tests have shown egg production increases of from 6-37% and improve conversion of feed to eggs by up to 18%. Check No. 5606 on the coupon and mail it to Feedstuffs to secure more complete details.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 5540—Booklet on high-level antibiotic feeding, Commercial Solvents Corp.

No. 5541 — Phenothiazine wormer for cattle and sheep, VyLactos Laboratories, Inc.

No. 5542 — "Pallet bag" for "squared-off" appearance, St. Regis Paper Co.

No. 5543—Poultry feed additive, Heterochemical Corp.

No. 5544 — Dauber lid for screw worm smear containers, Dr. L. D. LeGear Medicine Co.

No. 5545—Dairy cattle feeding program, Pillsbury Mills, Inc.

No. 5546—Bulk delivery of molasses feed, Baughman Manufacturing Co.

No. 5547—Vitamin D product for treatment of milk fever in dairy cattle, Silmo Chemical Corp.

No. 5548—Grain shovel devices, Foster & Felter Co.

No. 5549—Counter display for self-service of nf-180 tablets, Hess & Clark, Inc.

No. 5550 — Bulk feed tank with 2½-5 ton capacities, Martin Steel Products Co.

No. 5551—Dog food, Vitality Mills, Inc.

No. 5552—Water tube boilers, Nebraska Boiler Co., Inc.

No. 5553—One-man push button loading of boxcars and trucks, R. T. Sheehan Co.

No. 5554—Liquid compounded fat for alfalfa dehydration and feed mixing, Swift & Co.

No. 5555—Feed fortification product, New England By-Products Corp.

No. 5556—Pneumatic feed mover, Dunbar Kapple, Inc.

No. 5557—Booklet on vaccination of poultry, Dr. Salsbury's Laboratories.

No. 5558—Hammer Mill, Myers-Sherman Co.

No. 5559—Feed supplement for swine, cattle and sheep, American Cyanamid Co.

No. 5560—Display bag frame for showing empty feed bags on counters, windows, Bag Display Co.

No. 5561—Attrition mill, Strong-Scott Manufacturing Co.

No. 5562—Swine salt with extra zinc, Hardy Salt Co.

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No. 5564—Calf manual and guide

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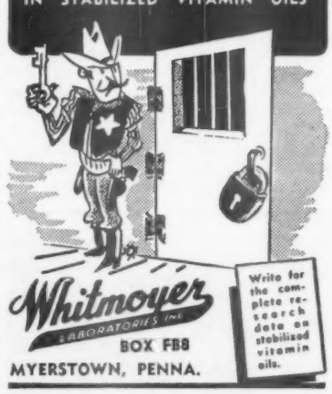

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No. 5575—Feed flavor for use at point of delivery, Flavor Corporation of America.

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No. 5577—256-page book on dog care, available at nominal charge, published by Bantam Books, Inc., and written by Harry Miller, director, Gaines Dog Research Center.

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No. 5588—Booklet on poultry feeding and management, Pillsbury Mills Inc.

No. 5589—Warehouse corn sheller, Belle City Manufacturing Co.

No. 5590—Corn sheller for elevators, Triumph Division, C. O. Bartlett & Snow Co.

No. 5591—Pellet mill bulletin, Sprout, Waldron & Co., Inc.

No. 5592—Bagging equipment catalog, Bemis Bro. Bag Co., Packaging Service Division.

No. 5593—Dried cane blackstrap molasses product, VyLactos Laboratories, Inc.

No. 5594—Antioxidant guide, U.S. Industrial Chemicals Co.

No. 5595—Combination bagging scale and sewing machine, Burrows Equipment Co.

No. 5596—Fire detection system, Seedburo Equipment Co.

No. 5597—Cereal ration prepared as a feeding supplement, Pablum Products Division of Mead Johnson & Co.

No. 5599—Pneumatic delivery of bulk feed, Baughman Manufacturing Co.

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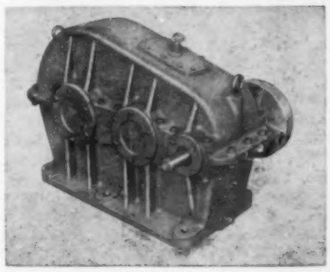
Both the No. 9 and No. 10 drives are self-contained and compact, make installation easier and reduce fire hazard when handling heavy loads. Each unit features an automatic safety device which keeps the loaded belt from backing down if the power should fail. This feature prevents the loaded cups from dragging the belt backwards and choking the leg. This back-stop (or lock) is readily accessible because it is mounted on a shaft extending outside the gear case. It can be serviced without detaching any other part of the drive.

Easy, Economical Installation

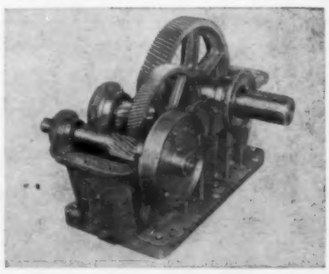
The Strong-Scott No. 9 and 10 head drives are compact and easy to install. Input and output shafts may be assembled on the same side or on opposite sides of the drive to facilitate an efficient and economical mounting arrangement. This also permits the drive to be run in either direction to suit conditions. If necessary the output speed can be changed by removing the covers and inserting new gears. This can be done wherever the head drive has been installed, without dismounting the head drive from the bridge trees.

Low Maintenance Cost

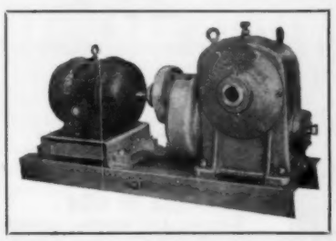
The heavy duty design of the No. 9 and 10 head drives allows continuous operation without fear of breakdown and with only minimum maintenance. Each drive has a self-contained lubricating system and the shafts are provided with oil seals to prevent leakage. A generated double helical gear reduction assures maximum accuracy of gear meshes. Uniform load distribution reduces wear and maintenance and provides a quieter operation. The unique self-cleaning back-stop prevents dust from impairing its efficiency.



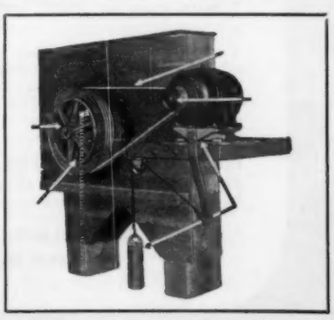
1. Side view of drive showing heavy cast housing with reinforcing ribs for extra support at bearings.



2. Drive with cover removed, showing automatic back-stop and heavy duty roller bearings.



3. Illustrated directly above is the basic unit used for the No. 7 and No. 8 Strong-Scott Elevator Head Drives.



4. Above is the Strong-Scott Planetary Geared Head Drive which has proved its superior efficiency over a long period of time

No. 7 and 8 Head Drives Mount on Either Side— Locate in Front or Rear

Figure 3 shows the basic unit used for the No. 7 and No. 8 head drives. It is mounted on an all steel frame. This frame is used for several motor sizes and is provided with a removable motor base.

Each drive may be used on either side of the elevator head and located to the front or rear of the head shaft. The complete assembly is compact, well-balanced and symmetrical. With each No. 7 or No. 8 Strong-Scott drive is included a sturdy, fabricated steel mounting base which carries both the motor and drive unit, so that they can be properly aligned.

Various Speeds Available

Gears are available for head shaft speeds of 40, 45, 50, 55 RPM. Other speeds are available on request.

The No. 7 drives are used with 5 to 10 H.P. motors and the No. 8 with 10 to 20 H.P. motors.

Maximum power can be used with these drives to pull out ordinary chokeups. The automatic back-stop prevents the loaded belt dropping back if power fails.

Strong-Scott Planetary Drive Has Highest Efficiency Rating in Power Transmission

The proved performance of the Strong-Scott Planetary Gear Head Drive makes it the most asked for head drive wherever economical installation is desired and not over 15 H.P. is required.

By proper engineering motor slippage is practically eliminated. The danger of fire through friction has been reduced by doubling the usual number of V-belts so that this unit has been approved by Mills Mutual for insurance.

The Strong-Scott Planetary Head Drive has the highest efficiency rating because it delivers to the head shaft the highest percentage of power.

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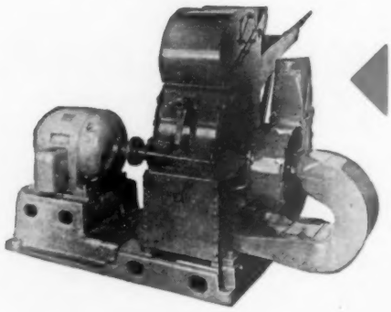

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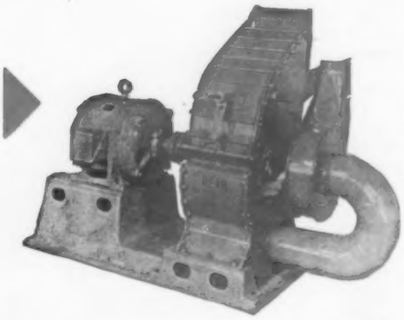

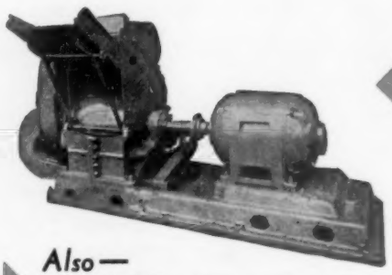

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GOVERNMENT—THE UNWILLING COMPETITOR

(Continued from page 46)

business. To the extent that proposals advanced by the trade were found to be compatible with the effective and efficient functioning of our programs, we have implemented these proposals, with the operating procedures developed in close consultation with all segments of the trade directly or indirectly affected.

USDA Receptive to Proposals

In disposing of CCC stocks of grain determined to be out of condition or in danger of deterioration, wide trade participation has been made possible by a policy of offering such grain into commercial channels at the primary assembly points. It is realized that this sales policy has not eliminated government merchandising of grain, and particularly of corn, to the extent that was hoped, and USDA is open and receptive to proposals that would enable it to completely withdraw from a field of activities in which it is under constant attack by the grain trade on the grounds of competition with its historic marketing functions.

In wheat export trade, the conflict between government activities and the functions of the private trade has been largely resolved by adopting the subsidy-in-kind wheat export program which not only has transferred to private exporters the principal responsibility for handling wheat exports previously carried out by the government, but the price-strengthening effects of drawing wheat sales for export from free market supplies instead of government stocks has been an important step towards enabling producers to obtain higher prices in the market place in preference to receiving higher prices through default of loans.

As the successful operation of the subsidy-in-kind wheat export program becomes more clearly established, consideration will doubtless be given to a policy of extending the program to corn and other grains. There is, however, one fundamental difference with respect to the export problem as between wheat and corn. Wheat is historically an export crop, and under the operation of present price supports exports could not be made without a subsidy to bridge the gap between supported domestic market prices and world prices. The government, therefore, has, under these conditions, an obligation to maintain wheat exports, under international agreement or otherwise. For wheat, the subsidization of exports is a necessary concomitant of price supports.

Corn, on the other hand, is not produced for export, and export sales, at least historically, are the result of price competition with other corn exporting countries in international trade. In view of the record supply of corn under government ownership and the indications for a further substantial increase in carryover stocks at the end of the 1956-57 marketing year, consideration may be given to an export program for CCC corn later in the season.

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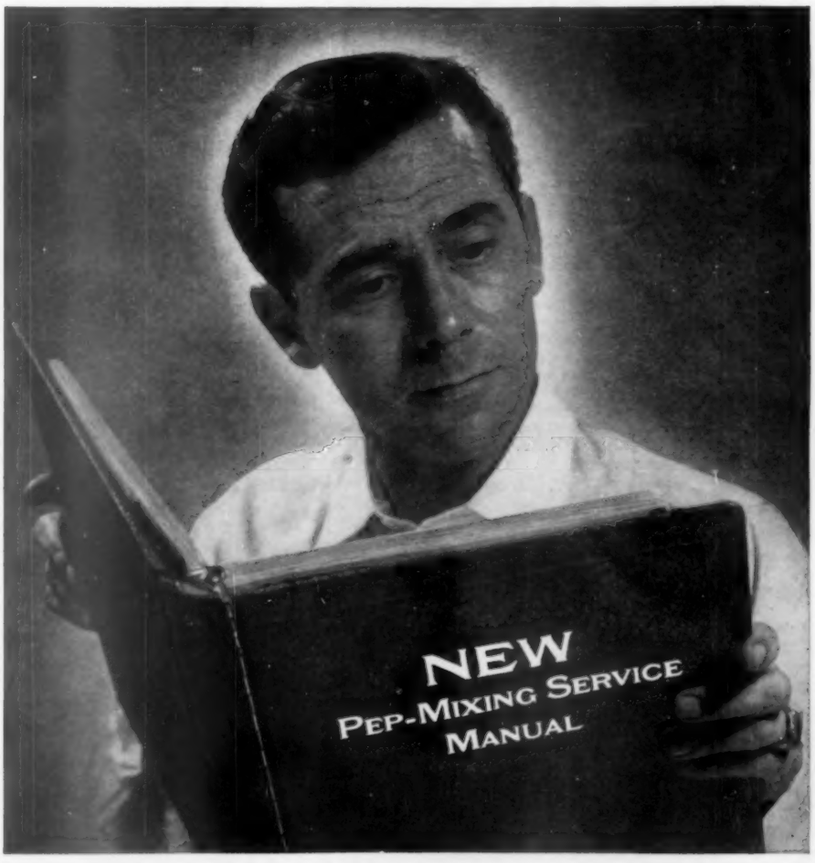

Let's look realistically at your custom grinding and mixing business. Is it making money for you? Or is it just a service rendered by you . . . one that wipes out other profits that you are entitled to? If this is your problem, let's talk about it together, for Ful-O-Pep has a new Pep-Mixing Program that will help you make money even at competitor's rates.

Increase efficiency of your operation with Ful-O-Pep's SOUND BUSINESS PLAN

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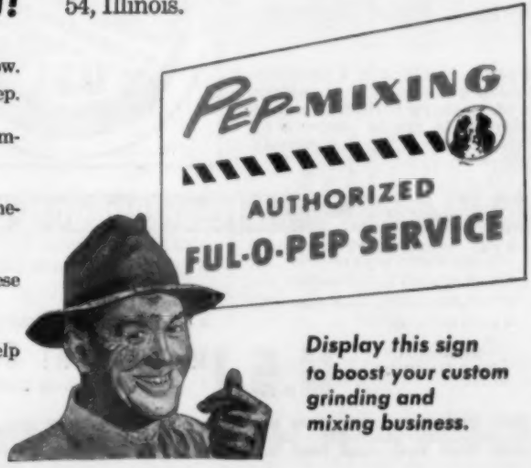
- ✔ **YOU GET PERSONAL SALES HELP.** Your friendly Ful-O-Pep Representative will help you sell . . . and will help you train your store employees, too.

Ful-O-Pep packs what grain lacks



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Poultry Industry Outlook

There'll Be Some Changes Made

"I don't know how fast it's coming," says the author, "but I'd hate to try to compete in the future against eggs produced under contract"

By Earl F. Crouse

The poultry world is in a turmoil these days and little wonder. The rate of technological change is staggering, and if we're not careful, we'll find that we are left standing at the station after the train has gone by. Really it's difficult to understand what has happened, much less plan for the future.

When I finished college in 1938, my college professor in agricultural economics made it clear that poultry would always be oriented to the Midwest. You all know the arguments, but for the sake of clarity and to help build a solid foundation for our thoughts, let's review the thinking of 20 years ago.

How is it that the Midwest has lost the broiler market in this period My professor told us, and rightly, that the Midwest had a corner on the feed supply. We still do for that matter. And what broiler produced anywhere in the U.S. doesn't eat corn and soybean meal from farms of the Corn Belt? No, it was not the lack of feed resources that moved the production of chicken meat out of the Midwest.

Labor was free in the organization of the Midwest poultry enterprise of 20 years ago. The sale of eggs, cockerels, cull hens and turkeys was mother's source of cash money. Since she could not sell her time for cash in any other way, she and the children gave their labor. Dad was generous and so long as there was corn in the crib, the feed was free, too. The only money charged against the poultry was the cash cost of "laying mash" plus, when the corn ran out, "scratch grain."

Erroneous Conclusion

My college professor looked at these facts and followed most of his contemporaries to a very erroneous conclusion. He and others failed completely to consider the economic cost of this system. They looked only at the farmers' side of the picture and never once gave thought to the marketing and distributing expenses involved. They assumed that the job of agriculture was done when the chickens had been sold from the

EDITOR'S NOTE: The poultry and feed industries continue to face some far-reaching changes, the accompanying article indicates. "And if we're not careful," says the author, "we'll find that we're left standing at the station after the train has gone by." Earl F. Crouse, vice president of Doane Agricultural Service, Inc., St. Louis, calls attention to the development of "assembly-line" production of broilers, and he foresees similar production principles and more production under contract of other poultry and livestock. "I don't know how fast it's coming," he says, "but I'd hate to be trying to compete against contract eggs in the future." He notes that contract production of eggs in cage operations, with financing and guaranteed markets and prices, is rapidly getting started. Mr. Crouse also comments on the future of agriculture generally and its need to adjust to the tremendous technological changes. In an article in the Oct. 20 issue of Feedstuffs, Mr. Crouse discussed the poultry industry future and vertical integration. This article further develops certain aspects of the subject. The article is from a talk by Mr. Crouse at the hatchery convention of the Missouri Poultry Improvement Assn. in Kansas City.

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U.S.I. FEED NEWS

Vol. III, No. 12 ★ A SERIES FOR SCIENTISTS AND EXECUTIVES OF THE FEED MANUFACTURING INDUSTRY ★ December, 1956

Methionine Increases Protein Utilization of Dried Fish Meal

Supplementation of commercial fish meal with methionine, an essential amino acid, raises significantly the net protein utilization of the meal, according to a report recently published in England.

During the drying process, the action of heat in the presence of moisture is said to impair the protein quality of fish meal. Methionine becomes the chief limiting amino acid and increasing the methionine content of the fish meal through supplementation restores most of the protein value of the meal.

Choline Overcomes Selenium Toxicity

Experiments at a leading midwest agricultural school indicate that supplemental choline chloride can give 100% protection against the toxic effects of selenium.

The addition of choline chloride to experimental diets also increased the growth and lengthened the life span of animals to which selenium had been administered.

Methionine Counteracts Toxin in Plant Disease

The poisonous action of a naturally occurring antimetabolite of methionine which causes wildfire disease in tobacco plants can be overcome by methionine, according to a recently published report.

U. S. I. CELEBRATES 50th ANNIVERSARY

Marks Many "Firsts" in Chemical and Feed Development

The close of the year 1956 marks U.S.I.'s first half-century of chemical progress. Founded in 1906, the company today is a leading producer of chemicals, solvents, resins, alcohols and feed supplements, with manufacturing and sales facilities in all parts of the country.

Original U.S.I. research made possible the commercial production of many chemicals important to industry today—methyl and amyl acetates, diethyl ether and ethylene. Urethan, aptly described as an "idea" chemical with wide applications in plastics and pharmaceuticals, was first produced in this country by U.S.I.

New Concepts in Nutrition

Of great importance to the feed industry were such advances as U.S.I.'s original development work on A.P.F. (animal protein factor) which led to recognition of the importance of Vitamin B_{12} in animal nutrition. Another contribution was research on the use of the antibiotic, bacitracin, in animal feeding. Further, U.S.I. assisted in introducing fermentation by-products as feed additives to high energy rations replacing more expensive feed ingredients such as liver meal and milk powder as a source of unidentified growth factors. Also, U.S.I. was one of the first producers of riboflavin made by fermentation processes. The company is a major manufacturer of metallic sodium, a chemical intermediate used in preparing veterinary drug products for combatting coccidiosis and other animal diseases.

U.S.I. Pioneers in Methionine

A discovery that has been of enormous importance to the feed industry was U.S.I.'s development in 1946 of a new process for synthesizing methionine at a small fraction of its previous cost. Subsequent research has established methionine's value in promoting the growth and health of livestock and poultry.

U.S.I.'s long tradition of growth through chemical research has led the company to greatly expand its facilities for producing polyethylene, used widely in packaging numerous food products. U.S.I. today — at 50 — is still looking ahead and expanding with youthful vigor.

Penicillin Increases Egg Production and Feed Efficiency in Hens

European researchers have been able to produce a 27% increase in egg production by feeding laying hens a diet supplemented with 3.6 grams per ton of procaine penicillin, according to a recent report.

Penicillin also increased feed utilization 22% over laying hens not receiving the antibiotic.

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farm. Only within the past few years have farm economists begun to recognize the larger "agribusiness" nature of modern-day production, marketing and distribution of farm products.

In the long run it was these forces beyond the farm fences that left the major Corn Belt States without a single important broiler production area. As we look back, it's easy to see how it happened. Basically it was the high cost of assembling, the high cost of handling and the high cost of processing an inferior product that moved poultry meat production out of the Midwest.

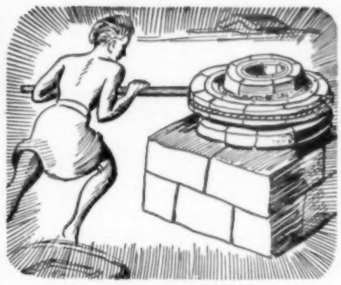
No matter how you went about it, the actual and the economic cost of gathering up 50 to 100 cockerels per farm from the 2,000 farmers in a county was high. Modern processing plants were out of the question because farm fryers were available for only a few months in the summer and fall. No one could afford the overhead of processing facilities that stood idle half of the year—even longer if no turkeys were available. Because of the very nature of things much poultry was handled live until sold to the customer. Chicken was a meat for special occasions and that was about all.

New Concept

Today the picture has changed completely. Chickens are produced and sold month-in, month-out. One man will handle up to 20,000 birds at a time and produce up to 100,000 birds per year. I know of some larger operators but it would hardly be fair to call them one man operations. However bigger one man units are coming. Chicken, instead of being a meat for the rich and for special occasions, has become poor man's meat for every day. It competes favorably with pork as a low cost source of animal protein for the diet. Whether by chance or by design I do not know, but the poultry industry has hit upon a new concept in food production.

For the first time in the history of man, meat production has been put on an assembly line setup. In my opinion, the developments of the past 20 years are a forward step comparable to the domestication of farm livestock by our prehistoric ancestors. Try if you will to imagine what a boon it was to human society when someone hit upon the idea of raising their own meat instead of hunting it down.

Historians of the future will rate the discovery of mass production of broilers right up there at the top among turning points in agricultural history. Cyrus McCormick invented the reaper and paved the way to world abundance of food grain. Eli Whitney invented the cotton gin and made it possible to clothe a world. John Deere forged a steel plow and released a new abundance of feed grains. I don't suppose anyone knows who first applied assembly line meth-



EARLY METHODS

for grinding evolved slowly. It took hundreds of years for the transition from the saddlestone to the lever mill. The Greek Delian mill, utilizing the revolving lever principle, was made of blocks of lava bound together. The mill had no true hopper and had only a small space between the two rings. The outer ring rested directly on the inner ring.

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REPORT TO THE FEED INDUSTRY

"Feed manufacturer...valuable partner"

R. E. Arnold, cattle feeder near Jacksonville, Illinois, pays respects to feed industry as "valuable partners in our business."

by Eugene S. Hahnel

Fifteen major farm magazines, with a combined circulation of 3,380,000, are carrying this tribute to the feed industry, as well as Mr. Arnold's success story on feeding his market cattle supplements with 'Stilbosol.' This is part of the Lilly campaign to promote the products and services of the feed manufacturer as an essential part of good feeding management . . . including feeding beef cattle supplements fortified with 'Stilbosol.'

Arnold feeds about 600 head of cattle in an average year on his 535 fertile acres. He has already fattened 1500 head, using 'Stilbosol'-fortified supplement. "I think our cattle smooth off quicker," Arnold says. "They're very quiet in the feedlot. There's no going off feed or foundering, and I haven't had a sick steer in over a year."

'Stilbosol' boosts gains . . . lowers costs. Records kept on 64 head of steers and heifers indicate that 'Stilbosol' has upped his gains .8 lb. per day, Mr. Arnold reports. "They put on right around 3.2 lbs. per day for 150 days on feed, compared to about 2.4 lbs. in previous years. Cost of gain figured out at 11.4¢ per pound."

"Today, feed manufacturers' representatives like Joe Powell (center) are trained men who know when help is needed and how to help," says Arnold (left). Roland Howe (right), Mr. Arnold's son-in-law, is a very valuable factor in the Arnold farming operations.

12 ponds on the Arnold farm, strategically located, and with sediment basins just above them in the drainage area, store plenty of clean water which is piped to watering tanks. "We feeders founder more cattle through lack of water than we do on feed," expressed Mr. Arnold's feeling about need for water.

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ELI LILLY AND COMPANY, AGRICULTURAL PRODUCTS DIVISION, INDIANAPOLIS 6, INDIANA

ods to broiler production, but that development has laid the foundation for undreamed abundance of meat and animal products for human food.

More Under Contract

By no stretch of the imagination can a finite mind such as mine comprehend the magnitude of this new technology and its impact upon agriculture. We've seen it just far enough to know that it is big—in fact very big! Pork producers are already trying out some of the principles and find that they can be readily adapted to their problems. The time may not be far off when pork and beef as well as chickens and turkeys are produced under contract, and why not? There is not a sub-contractor in the whole Kansas City area that will make machine parts without a contract from someone.

Recently I was in a new laying house which was not yet complete. That hen house is made with masonry walls. It has not a single window, is fully air conditioned and has lights that turn on in the middle of the night, off in the middle of the afternoon. Some 1680 cages will be hung from the ceiling of that house, and then it won't be long until that farmer will be selling 100 dozen eggs each day, worth a guaranteed minimum of 37¢ doz. That means an annual gross income of over $13,000 from that one house which is located in a town lot.

Don't say it's impossible. Remember my college professor back in 1938. Two years ago I might have been tempted to say it can't be done. But today there may be hundreds of farmers who are producing eggs under a three-year contract. Who says a farmer can't get Grade A large eggs and 70% production out of that house? Certainly it's not the feed people or the breeding people. Only those who refuse to read the writing on the chicken house wall would say it can't be done.

I've heard that one man already has several such units in operation. Others have set ups to produce pullets that will be sold as replacements.

Feed Man Gains

You ask me what is ahead for poultry. I don't know just what's ahead, but I do know what is here. And it doesn't take a crystal ball to tell you that a farmer with a contract that guarantees him a market for all the Grade A large eggs he can produce at a minimum of 37¢ doz. is in a mighty strong position. The same goes for the feed man who has his feed sold for three years. The same goes for the food salesman who has his supplies assured for three years.

I fail to discover a loser unless it is the farmer, the feed man or the processor who does not have a contract. Certainly the consumer has everything to gain. You can find folks who'll argue that this is all bad—because it squeezes out a little farmer and hurts a little businessman somewhere. That it has changed and is changing agriculture no one can deny. But I ask you: What is our purpose in life? As members of this big agribusiness community, isn't it proper that we do all in our power to get food to the consumer with the smallest practical cost in terms of manpower? This is just another way of saying we're interested in increased output per man. After all it's only as output per man increases that we can enjoy a higher standard of living.

Don't think for a minute that we could have our American way of life if we were still a nation made up of 70-80% farmers. That was our position 150 years ago. There would be few automobiles, few refrigerators, few televisions, few doctors and few hatcherymen if someone had not started this ball to rolling a long time ago.

I am proud of the fact that agriculture has been able to improve its methods and take on new things until now every farmer can get 15 other people to work for him producing the automobiles, tractors, radios, televisions, refrigerators, air conditioners, lumber, baby chicks, pullets and other things essential to modern farming.

I'm not much upset by the fact that another 1 million people will leave agriculture again this year. That simply means that other farmers can afford to pay these people more to work for them in town than they can afford to pay them to stay and work for them on the farm. What's so bad about that? Every man wants to get ahead, I figure, and no other nation in the history of the world has been able to free such a large percentage of its people from the daily task of providing food for the table.

Farms Must Adjust

Now let me add this before someone reports that I am out to destroy the family farm. Nothing of the sort, but our family-type farms are going to adjust to this new technology—they have to, or submit themselves completely to domination by the federal government. In my humble opinion, the only way we could expect to maintain the status quo in agriculture is for big government to come in and stop progress.

It is possible, of course, for the government to say to farmers on one hand, "We'll support the price so you can make a living with your small volume," and, on the other, say to consumers, "We've got to have more taxes in order to pay the subsidy." But I submit: Either we break the spell of government controls and go on to give the American people more and better food with fewer man hours

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The AAFCO definition states: "**Defluorinated phosphate** includes either calcined, fused, or precipitated calcium phosphate. It shall contain not more than one part of fluorine (F) to 100 parts of phosphorus (P). The minimum percentage of calcium (Ca) and Phosphorus (P) and the maximum percentage of fluorine (F) shall be stated on the label. The term '**Defluorinated**' shall not be used as a part of the name of any product containing more than one part of fluorine (F) to 100 parts of Phosphorus (P)." (Adopted 1952.)

This definition covers the use of either defluorinated or dicalcium phosphate, **when you register your feeds to contain defluorinated phosphate.** You can restrict your phosphorus source by inadequate registration.

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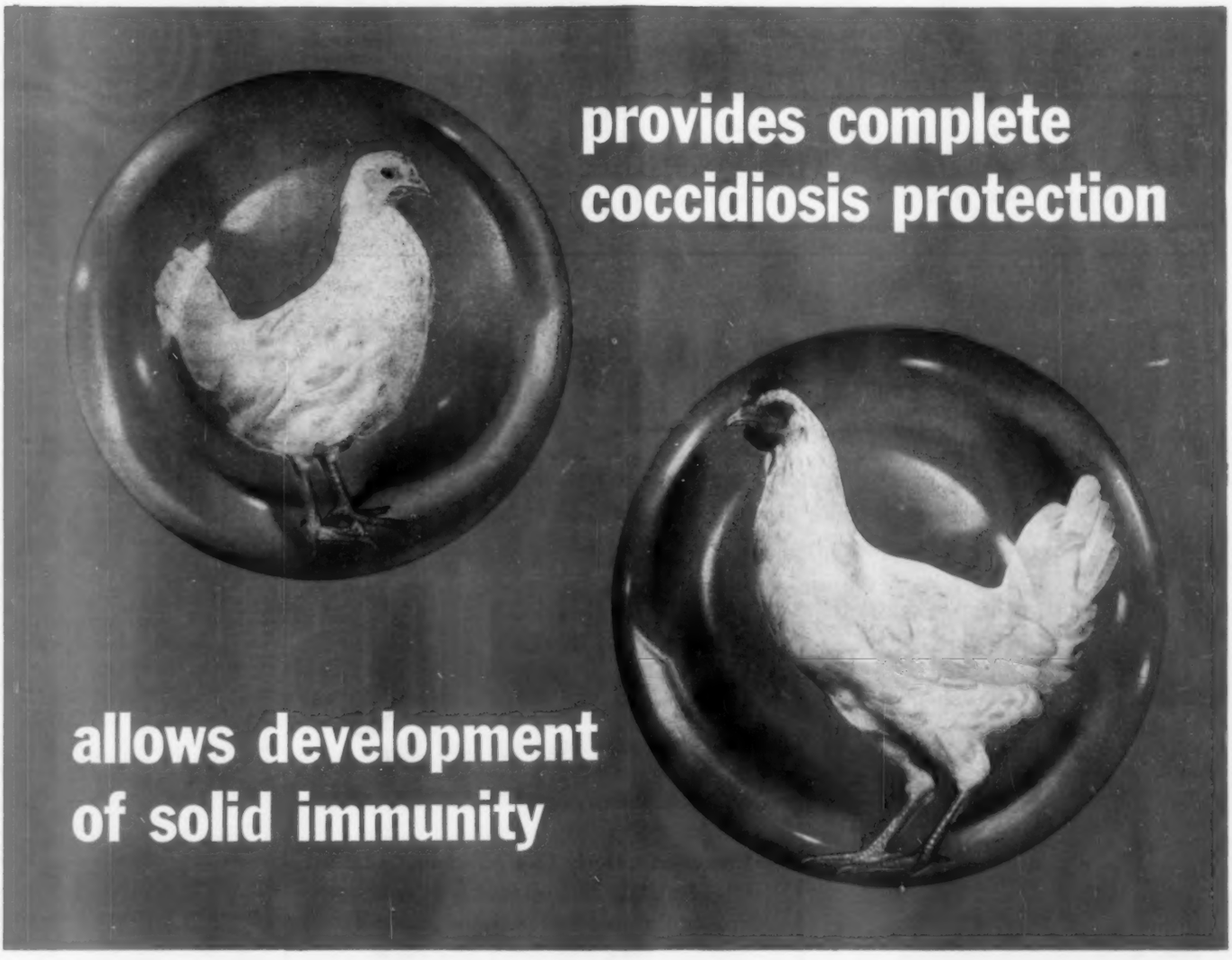

The development of a solid immunity in exposed pullets has now been established beyond all question of a doubt.

NICARBAZIN has so successfully met the needs of the broiler grower that it is routinely preferred over any other coccidiostat throughout the broiler industry. However, the needs of the poultryman raising replacement pullets are not the same as those of the broiler grower. His birds must develop an immunity to coccidiosis, since outbreaks are costly and since continuous lifetime feeding of a preventive coccidiostat is not practical.

Merck has conducted a long series of battery, floor-pen and field tests which prove: (a) NICARBAZIN permits the development of immunity in replacements, and (b) NICARBAZIN is sufficiently flexible to give protection in the face of varying levels of coccidiosis exposure. The results of these tests are now in hand and can be summarized:

1. NICARBAZIN permits adequately exposed replacements to establish an immunity to coccidiosis equal in every respect to that occurring in unprotected birds which have survived an attack of coccidiosis.

2. This immunity has developed in every case on exposure to cecal and intestinal coccidiosis.

3. NICARBAZIN markedly suppresses oocyst production, but it does not eliminate oocysts completely. As a result, other birds and subsequent broods may be exposed to the coccidia and thus develop their own immunity.

4. NICARBAZIN is highly flexible, and can be adjusted to permit effective immunity to develop over a wide range of exposure (varying conditions of soil, humidity and climate and seasonal incidence).

Since pullets can develop a solid immunity during the growing and starting periods to all species of coccidia to which they are properly exposed, NICARBAZIN should not be used in any laying ration.

One additional point needs emphasis. In the past, certain poultrymen have preferred to use spot treatment of outbreaks in order to assure the development of effective immunity . . . even when this resulted in costly losses. Now that the facts have been established, there is no longer any reason for feed manufacturers to permit poultrymen to deny their birds the benefits of a NICARBAZIN preventive program.

Tell your poultrymen about your feeds containing NICARBAZIN. Give them NICARBAZIN feeds for complete coccidiosis protection and high natural immunity.

If you have not received a copy of our new Technical Bulletin giving complete details on the immunity tests, send for it today.

MERCK

MERCK & CO., INC., Rahway, New Jersey

of work, or we slip backwards and sooner or later sacrifice our high standard of living for the empty promises of government bureaucracy.

Some folks tell you that farming is a depression-ridden occupation. I tell you that there's nothing wrong with agriculture. The trouble is all with us. We still look on agriculture as a horse-and-buggy business and keep trying to legislate profits for the buggy whip manufacturers who were a necessity in the days of my grandpa.

We must recognize that a new day is dawning for agriculture. We threw the crooked stick away when John Deere made a moldboard plow. We threw away the scythe when Cyrus McCormick invented the reaper. We did not replace our horses when the tractors became available. You must throw away your old ideas of farm production methods and think new thoughts.

The leadership which you have shown is challenging indeed, but the road ahead is even more steep and the rewards even more gratifying. Poultry and egg production will expand to give profitable employment to an ever increasing number of people and new adventures in good eating to more and more customers.

You can look forward to a market for more than 85 billion eggs, before U.S. population goes over the 200 million level. Within that same 10 to 15 year period broiler production will top 1.6 billion birds, and turkey production will exceed 100 million birds. These estimates are very conservative, and for egg production at least we look for production to move up at a relatively more rapid rate.

This one further thought I leave with you: Don't say it can't be done. Keep an open mind and help your farmers to understand and accept the changes which are coming on so fast. I don't know how fast it's coming, but I'd hate to be trying to compete against contract eggs in the future.

With a contract, a farmer can afford to take on a $10,000 investment in a laying house because he's assured it will pay off in three years. But without a contract, he doesn't know but that he'll be broke in three years. The road ahead will not be as easy as I've made it sound perhaps, but the train has only stopped to load on passengers. Will you board now or will you be left standing in the station?

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Acreage Reserve Tops 10 Million

WASHINGTON — Wheat farmers signed agreements placing 10,692,127 acres in the Soil Bank's 1957 winter wheat acreage reserve program through Nov. 9, the U.S. Department of Agriculture announced. USDA officials also announced that this report on participation in the 1957 winter wheat acreage reserve program is the final weekly report, since it is expected that any changes after this report will be small.

If the farmers who have now signed the agreements comply with the requirements of the program, they will be eligible for a maximum of $198,877,046 in acreage reserve payments.

According to reports from State Agricultural Stabilization and Conservation offices in the 36 states of the commercial wheat area, this amount of acreage was pledged in 193,474 agreements signed by farmers. The number of agreements signed has been revised from last week when it was reported that 194,918 agreements had been signed. The decrease in the number of agreements is due to cancellations since the program closed.

A breakdown by states on the number of 1957 wheat acreage reserve agreements signed follows:

State	No. signed	Acreage reserve approved	Maximum compensation approved
Arkansas	142	2,191	$ 40,332
California	908	114,830	2,780,988
Colorado	7,062	1,313,714	22,079,905
Delaware	101	2,202	53,584
Georgia	2,910	37,577	829,794
Idaho	1,870	92,117	2,051,831
Illinois	2,532	33,897	923,781
Indiana	5,819	70,577	1,969,233
Iowa	366	6,467	155,986
Kansas	38,886	4,357,182	81,563,369
Kentucky	3,286	35,761	734,388
Maryland	889	11,208	291,948
Michigan	11,450	133,849	4,421,276
Minnesota	259	3,857	79,100
Missouri	8,252	130,348	3,059,967
Montana	1,482	102,797	2,319,450
Nebraska	23,876	671,315	15,968,027
New Jersey	352	5,645	175,816
New Mexico	1,056	179,590	1,159,369
New York	7,758	93,570	3,418,169
No. Carolina	8,805	68,450	1,726,578
No. Dakota	5	248	4,482
Ohio	14,941	178,806	5,352,085
Oklahoma	18,600	1,301,889	19,863,631
Oregon	1,394	94,325	2,733,286
Pennsylvania	4,102	37,381	1,091,970
So. Carolina	3,762	40,539	966,515
So. Dakota	521	48,885	632,285
Tennessee	2,971	30,985	619,398
Texas	12,747	1,157,578	13,378,616
Utah	970	79,700	1,432,669
Virginia	3,336	31,906	852,809
Washington	1,727	189,921	5,539,502
W. Virginia	491	4,668	115,129
Wisconsin	309	2,646	76,357
Wyoming	337	25,506	415,419
Total commercial wheat states	193,474	10,692,127	$198,877,046

Payments to farmers participating in the 1956 acreage reserve program of the Soil Bank totaled $202,959,759.75 in 45 states and Puerto Rico to Nov. 9, USDA announced.

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Processed exactly like Minnesota Linseed Oil Meal, this 22% oil feed is from broken flaxseed and other oil seeds. To mix into your own dairy and cattle formulas, we recommend a mixture of 10% to 30%. You can expect almost the same results as pure linseed meal—and the savings are substantial.

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The only Mineral Stable Product with a biologic history of continuous stability month after month for four years.

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A product so widely accepted by the feed industry that it has often been imitated, but never equalled by other manufacturers.

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We appreciate the loyalty of our thousands of steady users and the cooperation of N. V. Philips Roxane, The Netherlands, the world's largest manufacturer of Vitamin D products.

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MAKE YOUR OWN 'DRY D'!

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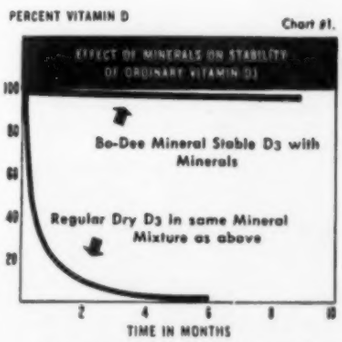
with the usual 10% margin of safety! First . . . you simply put 2,000 pounds of carrier (soybean meal, corn meal, etc.) in your mixer. Second . . . you add the contents of one hermetically sealed tin (16½ pounds) of BO-DEE (Mineral) STABLE VITAMIN D_3 powder to the carrier. Then, mix until homogeneous. (Time varies with equipment—usually about 20 minutes.) Finally, you sack in the usual manner, affixing identification tags which are furnished free with each tin, upon request.

WHAT IS BO-DEE Mineral STABLE VITAMIN D_3?

It's a free-flowing powder, guaranteed to be stable in the presence of most minerals for a period of 6 months. And remember this! When you make your own DRY D, you insure the quality of your product from start to finish—and, more important, you save up to $100.00 per ton! . . . with the usual 10% margin of safety!

Product of N. V. PHILIPS-ROXANE—*The Netherlands.*



Above chart shows rapid and complete deterioration of Vitamin D3 in a mixture of customarily used feed minerals. 9 parts minerals to 1 part Vitamin D in cereal carrier.

Send for technical descriptive booklet.

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Census Bureau Adjusts Figures on October Production of Fats, Oils

WASHINGTON—A census bureau report last week on production of fats and oils disclosed a major inaccuracy which had occurred previously—an inaccuracy which had brought confusion within the oilseed crushing industry.

This week's Census Bureau report, M-17-1B, noted that its estimate of the production of soybean oil and linseed oil reflected the inclusion of some oil which had actually been processed in September. Prior to the issuance of this item, the Census Bureau had issued its first fats and oils report for October, M-17-1A—which reported an October crush of soybeans of approximately 27.9 million bushels. This estimate caused consternation in the oilseed crushing industry since it had not been believed that the industry had this capacity.

The notation of the adjustment in the second report for soybean and linseed oils cleared the air in the crushing industry as Census Bureau officials reported that the discrepancy was due to the fact that four of the big crushers who process both flaxseed and soybeans have been operating on a 13-period year rather than by the calendar month. Consequently when the Census Bureau made its adjustment by throwing part of the September calendar month crush into the October period it exaggerated the actual bean and flax crush for the latter month.

Now that the issue has been exposed and clarified it may be expected that the crushing industry and feed industry customers may be able to adjust their projections of the total annual production potential. On that basis of the October soybean-flaxseed crush it appeared that for the full crop year a crush running as high as 330 million bushels of beans might have been reached.

Following the Census Bureau report this week officials of that agency estimated that the actual October soybean crush should have been not more than about 26.4 million bushels, rather than the previously reported 27.9 million.

British Columbia Feed Group Names Directors

VANCOUVER—The annual meeting of the British Columbia Feed Manufacturers Assn. here was highlighted by the presentation of eight papers, the election of directors and a dinner.

The retiring president, H. A. Kellington, Brackman-Ker Milling Co., Ltd., was in charge of sessions. The new board of directors will meet shortly to name officers for the year.

Members of the new board are: For Vancouver - New Westminster area, Mr. Kellington; J. K. Clarke, Buckerfield's, Ltd.; P. A. Moody, Ogilvie Flour Mills Co., Ltd.; J. L. Vallie, United Milling & Grain Co., Ltd.; B. A. Creelman, Surrey Co-Operative Assn.; F. W. Greer, Otter Farmers Institute, and W. T. Rogers, W. S. Rogers & Son.

E. E. Peden, Scott & Peden, Ltd., was chosen to act for Vancouver Island members.

TOP PRODUCER

SAN FRANCISCO — California farm production totaled $2.5 billion in 1955 to make it the top agricultural state in the nation, according to California Crop and Livestock Reporting Service. Cattle and calf production ranked a close second to dairy products with an income over $303 million. Hay production ranked fourth in the state with $169 million.

October, 1956, With Comparisons

The Production & Marketing Administration reports the following statistics on alfalfa meal output (in tons):

Period	Sun-cured	Dehydrated	Total
October, 1956*	17,800	75,400	93,200
September, 1956†	14,800	118,600	133,400
October, 1955	13,300	103,300	116,600
September, 1955	13,800	132,700	146,500
Season's total:			
April-Oct., 1956	101,800	911,300	1,013,100
April-Oct., 1955	111,200	1,120,600	1,231,800

*Preliminary. †Revised.

Stocks of Alfalfa Meal at Producing Plants in Tons

Oct. 31, 1956	5,800	363,800	369,600
Sept. 30, 1956	6,500	380,200	386,700
Oct. 31, 1955	4,400	466,500	470,900

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"We depend on H. C. Summers & Company for service...and we've always gotten it!"

—says George W. Hoffman, Jr., dairyman, Rt. 1, Adamstown, Md.

"We are grateful to the Summers Co. for the service and advice they have provided. Mr. Summers has never failed to help me when I needed him. This Purina Dealer service has helped me build a profitable dairy operation."

Mr. H. C. Summers, Jefferson, Maryland, took on the Purina Franchise in 1921. He describes his philosophy as a Purina Dealer in simple terms—to perform maximum service for his customers.

"We developed our business because we practiced what we preached," says Mr. Summers. "We've always preached service."

Dairying has provided the largest potential for Mr. Summers during the last 35 years. He initiated delivery service for dairies, and made new customer contacts on a regular basis. Summers Co. has added still more services by installing two mixers, a grinder and molasses attachment.

Farmers are encouraged to bring in grain for grinding and mixing, but if they can't get to town, Summers will go out to the farm, bring back the grain, mix it and deliver the complete ration. Customers have learned to expect and depend on this kind of service.

Dairyman George W. Hoffman, Jr., is a typical Summers customer. He started in the dairy business in 1948, and has grown steadily. Young Hoffman gives lots of credit to the Summers Co. for his growth.

"We are milking 30 head now," says Mr. Hoffman, "with a total of 60 Holstein cows and heifers in our herd."

Real Service to the Farmer

"Congratulations, Mr. Summers!" says Purina Salesman F. G. Lodge. "Here is an outstanding example of how to increase dairy tonnage in an area where the number of dairy farms has remained about the same."

Platform of service produces increased tonnage

The Summers Co. has enjoyed its biggest increase in Dairy Chows tonnage during the last six years. New grinding and mixing equipment, well-trained men to operate the equipment, plus aggressive, consistent management follow-through, have built the business to its present level.

Purina Salesman Fred Lodge puts it this way: "This company was built on service and has grown on a platform of service. Management has been alert and progressive in using the tools Purina provides its dealers."

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New! PROPYLENE GLYCOL* in Morton *Trace-Mineralized* Mixing Salts

stops uneven distribution of trace minerals in formula feeds

*Propylene Glycol is a superior anti-segregation compound patented by Morton Salt Company for use in mixing salts. Like all other ingredients in Morton Trace-Mineralized Mixing Salts, it is proved by research to be the finest obtainable.

Availability of minerals and palatability unaffected. Research also demonstrates that Propylene Glycol does not reduce the availability of trace minerals . . . neither does it affect palatability. Here again, its use by Morton helps you produce finer feeds. You can get prompt delivery of Morton Mixing Salts, anytime, anywhere in the U. S. Order your needs today.

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What's New in Feeding
Putting Research to Work

Studies on Drug Toxicity in Chicks. 1. The influence of various levels of Megasul (nitrophenide) on growth and development of chicks.

● P. M. Newberne and H. C. McDougle, University of Missouri; Poultry Science, Vol. 35, No. 5, pages 1044-1049 (September, 1956).

Day-old New Hampshire chicks were used in an experiment to determine the effect of various levels of Megasul (nitrophenide) on growth and development of chicks. The chicks were maintained in lots of 25 with approximately equal distribution of sexes. Feed and water were supplied ad libitum. A corn-soybean oil meal-type ration, fortified with vitamins, minerals and antibiotics, was used as the basal ration. Megasul was added in varying amounts as follows: 0%, 0.0125%, 0.025%, 0.050% and 0.100%. The chicks were maintained in electrically heated batteries and weighed at weekly intervals. Blood and tissue studies were made on one chick from each group at each weekly weighing. The experiment extended over a six-week period.

There was no significant difference in average weight gains in the chicks on the basal diet and those maintained on the basal diet plus 0.0125% Megasul. However, beginning with the first week, average weight gains decreased as the level of the drug in the diet was increased.

Symptoms of excitability and incoordination were shown on the fourth day by chicks in the groups receiving the 0.050% level and the 0.100% level in the feed. By the end of the first week, part of the chicks receiving the 0.0250% level and most of the chicks receiving the two highest levels were incoordinate and sleepy. The authors described these symptoms as follows: "When disturbed, they would jump into the air, chirp loudly and fall on their sides. They would lie on their sides and make walking motions with their legs for awhile before they were able to regain their feet." The birds would either feed, drink or sleep in a normal manner, if they were not disturbed. However, the chicks being fed the three highest levels of Megasul appeared to eat until satisfied, then sleep for long periods of time.

Chicks in the group being fed the 0.100% level of Megasul showed symptoms of the nervous form of Newcastle disease at eight days. On the tenth day, six chicks on the 0.050% level and five of the chicks on the 0.0250% level were exhibiting the same symptoms. At the end of two weeks, two chicks on the 0.0250% level were showing these symptoms along with an increase in the numbers affected in the other two groups receiving the highest levels. While the symptoms were more pronounced when the chicks were disturbed, the symptoms appeared to be intermittent in most of the birds. Results of bacteriological tests and histological examinations revealed no evidence of the presence of Newcastle disease.

Some of the chicks in the two lots on the highest levels of the drug were observed to show symptoms of avian encephalomyelitis (epidemic tremor) at eight days. Here again, histological examination did not confirm the presence of this condition.

During the period from the fourth through the sixth week, the birds became less excitable and the symptoms less pronounced in the three groups involved. However, the symptoms disappeared entirely in the group fed on the 0.0250% level of Megasul after four weeks, indicating that some degree of tolerance for

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the drug was being developed. The chicks in the group fed on the higher levels appeared anemic, and the disturbances in posture and motion persisted. Feed consumption was reduced in all but the group on the basal diet and the group fed on the 0.0125% level of the drug.

The authors also presented detailed data, based on blood and tissue studies, to show that a degeneration of the blood cells and hemoglobin, together with muscular and subcutaneous hemorrhage, was associated with the increased levels of the drug being fed. Histological studies also showed that major changes took place in the structure of the bones and liver.

COMMENTS:

Megasul (nitrophenide) is an anticoccidial agent which has been added to poultry feeds for the prevention, control or treatment of cecal and intestinal coccidiosis. It has been widely used for a number of years. While comparatively little is known as to its effects at levels above 0.0125% in the feed, it has been used extensively at the 0.025% level in some areas in the prevention and control of coccidiosis.

The results of this work serve to remind us again that many drugs being used in poultry and livestock feeds for the prevention and control or treatment of disease, as well as for growth promoting effects, can bring about adverse effects under certain conditions. The feeding of drug levels, either by accident or intentially, other than those recommended by the manufacturer, usually leads to trouble.

Increased feed intake or water consumption so that the individual birds or animals receive an increased dosage of the drug brings about the same results. Improper mixing of the drug in the feed or water must be guarded against. Extended periods of drug administration, even though at the recommended levels, can sometimes result in undesirable effects.

All drugs administered in the feed or water, either for disease prevention or treatment or for growth promotion, should be used only in accordance with the manufacturer's recommendations. The old adage, "If a little bit is good, more is better," does not hold true in the use of drugs and similar compounds in feeds for poultry and livestock.

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LAKELAND, FLA. — The Kraft Foods Corp. has revealed plans for construction of a citrus processing plant near Lakeland.

The $5 million plant will process citrus concentrate and other food products, and as a by-product there will be citrus pulp for feeding.

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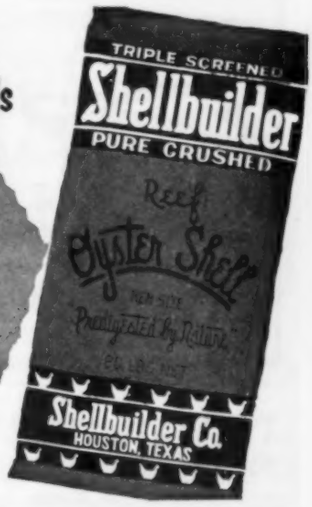

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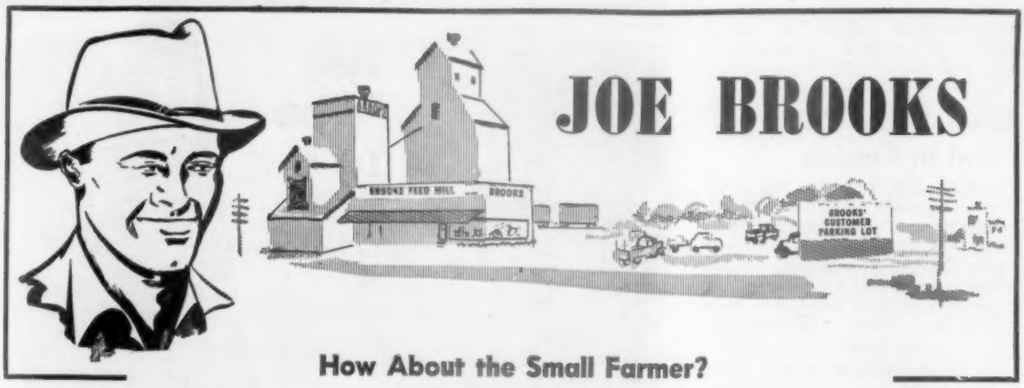

How About the Small Farmer?

By Al P. Nelson

Walt Gaskell was nearing 50. He had been on the farm for over 30 years, the farm which had sustained his father and grandfather before him. Years ago, the 80-acre farm was sufficient to raise a large family, for much of the work had to be done with hands, and later on, with limited machinery.

But now, Walt Gaskell and his hard working wife, Hannah, knew that 80 acres were not enough. Machinery and other costs were up, total farm investments were high. They would need more land to farm efficiently and profitably, rather than merely eking out an existence. And Walt somehow didn't want to take on more land, more work, more expenses—not at 50. He had worked hard enough in his lifetime. Now he wanted to take it a little easier, and so did his wife. But they didn't want to retire. They liked farm work and farm life. They wanted to stay on the farm until they were 60. After that, retirement to town would be considered.

Soft snow whirled about Walt Gaskell as he made his way from the barn to the house after the evening milking. The wind whistled around the eaves of the shed at the west end of the house, and the lighted house looked mighty cheerful. A quarter mile down the road, he could now and then see the lights in the house of Mike Pender, his neighbor.

Walt stepped into the warm kitchen, filled with odors of good cooking. "I'm glad you came in, Walt," smiled his plump wife. "The roast beef is nice and hot. Wash and sit right down."

As they ate at the kitchen table, with its red and white checkered cloth, the farm couple talked, mostly about the letter that had come from their son Henry and wife in a distant city.

City Not for Him

"Henry and his wife mean well," Walt said, brushing back his heavy graying hair, "but can you imagine me living in a city? Hearing all those factory whistles blowing every morning. No cows, no chickens, no clean smell of the hay, no seeing a hundred robins in the spring sitting on the wet turned soil behind me as I plow, and me running like hell for the barn in a spring thunderstorm. No, Hannah, not me."

"I can't see myself living in the city, either," sighed his wife. "But what Henry says is true. An 80-acre farm is too small nowadays to farm and make a reasonable profit. It's either sell out or buy more land and have a large operation."

" 'Taint right," Walt Gaskell said, stirring sugar into his coffee. "All of us small farmers can't go out of business. We love the land too much. We are willing to work. We wouldn't fit anywhere else."

"Oh well," returned his wife, "it isn't as if we have to decide today. Let's sleep on it. Go read the weekly

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In addition, Polystat *stimulates growth and improves feed conversion.* Its effect on subclinical (unseen) disease and stress factors is indicated by the improvement in flock health, growth, and production.

Everyone connected with the poultry industry knows disease problems can be complex. We who work directly with diseases are constantly discovering new facts and concepts, such as the effects of stress on the physiology and, therefore, the disease resistance of the bird.

You in the feed industry are certainly aware of the increasing need for preventive, therapeutic, and supportive mixtures.

Clearly, with the bewildering complexity of diseases and stress factors, the poultryman now needs protection along a broad front. This is why I urge you to take a new look at Polystat.

Polystat, a multi-chemical product, affords the broad disease protection that poultrymen need. It helps prevent coccidiosis, worms and hexamitiasis, and also stimulates growth. Recently, we have discovered that Polystat also offers protection against pullorum, typhoid, and turkey bluecomb.

All these specific disease-preventing properties add up to effectiveness against a broad range of organisms from Salmonella bacteria to protozoans and worms.

The effect of Polystat on growth and on feed efficiency indicates that it reduces subclinical disease and minimizes stress factors.

Polystat sometimes is compared with additives that only prevent coccidiosis, or that only control worms, or that only stimulate growth. None of these comparisons can be valid, for Polystat is more than a coccidiostat, more than a worm preventive, more than a growth stimulant. Polystat is in fact many feed additives in one!

I know your customers will be enthusiastic about the broad disease protection Polystat affords.

I believe you too will appreciate the broad-range benefits of Polystat. It simplifies your feed-additive program. You do not need to include a separate coccidiostat, a separate wormer, or a separate growth stimulant. With Polystat, you have all in one – an additive that improves the efficiency of your poultry feeds. It's worth more because it does more.

This has been but a brief new look at Polystat. To get the full picture, I invite you to write for Polystat Feed Manufacturers Guide No. 7-A.

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newspaper, while I do dishes. Then we can watch TV for awhile."

Walt Gaskell moved into the living room, sat down on the davenport and opened the weekly newspaper. He read for a few minutes, then exclaimed: "Well, for goodness sake, Hannah, listen to this."

Joe Brooks Has an Ad

He came into the kitchen, holding the paper, his blue eyes alight. "Joe Brooks has an ad in the paper this week on the very subject we are talking about. It's entitled: 'How About the Small Farmer?'"

His wife came close, looked at the ad over her glasses. "Why, I do declare, Walt. What does Joe say? Read it to me while I do dishes."

Walt Gaskell cleared his throat. "Well, there are some words that I can't pronounce too well, so I'll jest say it in my own words as I go along. Joe Brooks says that farms keep gettin' larger and fewer, and does that mean that the small farm is on the way out?"

His wife turned a worried face to her husband. "Well, does he think it is?"

Walt Gaskell read on. "Joe says that maybe the 60 to 80-acre farm is on the way out, if it is the only source of income for a man in the prime of his life and who has a family to support."

"Well, Walt, we haven't a family to support now," said his wife, "but we haven't saved much. We sent Henry to that business college for two years, and Mary and Alice both cost us plenty those four years they went to normal school before teaching."

Walt nodded. "But the kids are all married now, and it's time we saved more for our old age, Hannah."

"Read some more," said his wife, going on with the dish washing.

Extra Jobs

"Joe says that folks who like to live on farms, even if they are small farms, can stay on farms, if they will look for extra jobs, so they can make extra income. He says that a survey showed that 40% of the people who live on Wisconsin farms have part time outside jobs. And he says that in almost every county, there are shops, small industries, stores and offices that can't get enough help, even on a part-time basis. So the farmer doesn't have to stay on his small farm 24 hours a day, 12 months a year. He can still raise cows, chickens and farm his land, and work part time some months of the year. He thinks that this is the answer to many people who want to stay on small farms. Joe also invites any farmer to come and see him about working out a dairy herd and flock management program based on a farm schedule which includes some work in shop or store."

Plump Hannah Gaskell banged a washed frying pan on a kitchen counter. "Well, I do declare, Walt," she said, "that man has an idea. Funny we never thought of it before. Mr. Sidney at the Leader store often asks me if I want a part-time job in his store clerking, especially on Fridays, his busy day. He says I'm so friendly."

Walt Gaskell grinned. "Well, you are, Ma, you are. That's why I married you. I'm crabby, and I figgered your good nature would balance my sourness."

Hannah Gaskell flushed. "Oh, you!" she said. "You know there isn't anyone more patient than you are. Why, Walt, I'll bet I could work from 9 a.m. until 9 p.m. at the Leader every Friday. At $1 an hour that would be $12. Oh, my, that would be almost $50 a month, or $600 a year. That is, if I didn't get fired."

"Whew!" said Gaskell. "That's a lot of money."

Could Save Money

"We could put it into an old age savings account. In five years we would have $3,000!"

Both Walt and his wife stared at each other. Then Walt said: "I could easily handle the cow and chicken

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chores on Fridays, and eat leftovers, Hannah, at least from October until April or so. Or maybe all year for that matter. Come to think of it, Otto Gebhardt, the hardware man, knows I'm handy with tools. He raves about my farm workshop. Says anytime I want a job I can come and see him. Work part time if I want to. He has so many washing machine and other jobs to handle. And welding to do. He'll pay $2 an hour."

Hannah gasped. "Why, Walt, why don't you try putting in a few hours at Gebhardt's shop this winter, a few afternoons a week, just to see how it goes?"

Walt scratched his chin. "Well, I think I will. So this is how so many farmers manage to get new TV sets, new cars, sectional davenports and aluminum storm windows and lots of other things. They work part time at other jobs now and then."

"And they get cash," his wife pointed out. "We can do the same. It's a changing world, Walt. Just think that Joe Brooks figured this thing out. He knows lots of farmers face the same problem."

Walt nodded. "And if you and I work part time, one or two days a week," he said, "I reckon we could afford to buy better feeds for our chickens and cows, just like Joe's been advocating. I think I'll go in to see him tomorrow morning."

"But first stop at Gebhardt's and see about that part-time shop job."

"I will," laughed Walt, "and you better come along and talk to Mr. Sidney at the Leader about that Friday clerking job."

His wife smiled happily. "All right. Gosh, Walt, I'm getting real excited about this new life comin' up."

Walt Gaskell grinned confidently. "Well, I'm not exactly downhearted about it myself. I'll kinda like fixin' things in that shop, especially in the long winter months."

General American Elects 2 Key Men To Head Operation

CHICAGO—The board of directors of General American Transportation Corp. recently elected Sam Laud as chairman and Lester N. Selig as chairman of the company's executive committee.

Mr. Laud simultaneously disclosed that earnings of the firm for 1956 will run approximately $5.50 a share, compared with $5.24 last year.

"I feel that in assuming the post of chairman I do so at a most auspicious time in the financial history of our company. Based on the present backlog, our earnings for 1957 could go as high as $6.50 or $7 a share," said Mr. Laud.

The company recently raised its dividend rate from $2.80 to $3.20 and declared an extra dividend of 25¢ a share.

Mr. Laud has served as vice chairman of General American since the election of William J. Stebler as president two years ago. Mr. Selig has been chairman of the board. He formerly served as president of the company, having succeeded the late Max Epstein, founder.

Both men served in World War I and returned to General American, where Mr. Laud worked in various positions at the East Chicago plant. He was transferred to the general offices at Chicago in 1922, and in 1923 was appointed assistant to the comptroller. From 1927 to 1930 he was general manager of the company's tank car manufacturing division at Sharon, Pa., and then was brought back to Chicago and elected successively executive assistant to the president, director, president and vice chairman of the board.

After his army service in 1917-18, Mr. Selig served General American in various sales capacities and successively was elected assistant to the president, president, vice chairman, and chairman of the board.

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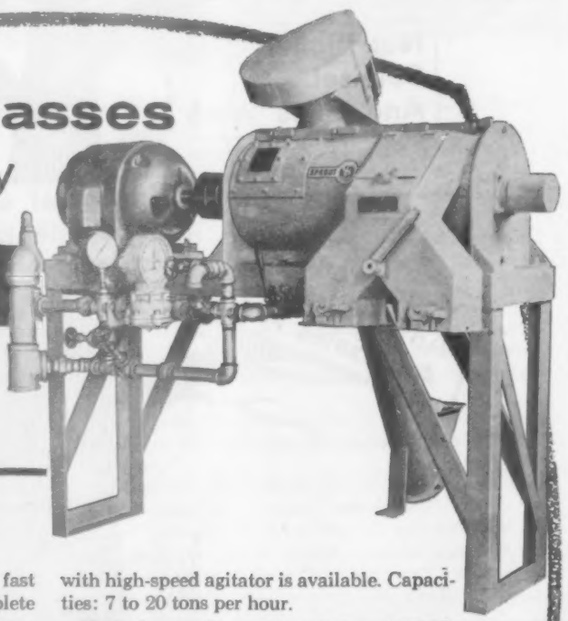

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Feed Service Bulletin Board

Helpful Notes on Feeding and Management for Feed Men and Their Customers

Good Breeder Ration

Farmers with breeding flocks should be certain that they feed a good breeder ration because an ordinary laying ration is not adequate, according to Byron W. Moore, association extension poultryman at West Virginia University.

Some flock owners have found that it is entirely possible to get a large number of eggs and yet when the eggs are placed in the incubator, the results are entirely unsatisfactory, Mr. Moore states. The point was emphasized by the results of an experiment conducted at Cornell University. Two pens of hens each received a different ration. Both pens had the same breeding background and each pen had an excellent average egg production record of 211 eggs per bird for the year. However, the hatchability of the two pens of birds was quite different. One pen hatched 71.4% of the fertile eggs set, while the other pen hatched only 27.5%

What caused the difference? One ration was a breeding ration, while the other contained only enough of the vitamins and minerals for egg production, but not enough to produce embryos strong enough to hatch, Mr. Moore explains.

At times, low hatchability is obtained even when a good breeder diet is fed. One possible explanation is that too much grain is being used. Breeder mashes that are designed to be fed with grain generally have extra amounts of vitamins, minerals and protein mixed in to allow for the feeding of equal parts of a grain mixture. If more than this amount of grain is fed, it dilutes the ration to a point where actual deficiencies of some of the essential vitamins, minerals and protein exist.

"For best hatchability and resulting chick growth, always feed a good breeder ration," Mr. Moore advises. "If grain is fed to the flock, be sure to check and see that the hens are eating the correct proportions of mash and grain."

◆

3 Important Factors

Three factors—shelter, water and feed—are important in the efficient production of market hogs during winter months.

Vernon Bell and Richard Hollandbeck, Purdue University extension swine specialists, report that each factor must be given consideration if hogs are to make the greatest gains during cold weather.

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eases if provided dry and draft-free sleeping quarters where there is ample bedding. The specialists point out that ground corn cobs make a suitable bedding for shoats.

Even during the coldest period of winter, water is an important part of the ration. Hogs will drink about 2 lb. of water for each pound of feed eaten, the specialists said. Clean, fresh water which will not freeze can be provided with automatic fountains or other types of waterers.

Pigs under 100 lb. in weight and not on pasture should receive 16% total protein in their ration, Purdue specialists suggest. The protein content can be reduced to 14% for hogs over 100 lb. The Purdue specialists add that hogs shou'd have access to a self-feeder or box containing salt and a mineral mixture at all times.

◆

225-lb. Weight Advised

The trend today is toward marketing hogs at weights around 225 lb. This is the point where average daily gains require more feed per pound than weights below 225 lb., according to H. G. Zavoral, extension livestock specialist at the University of Minnesota.

Meat-type hogs — "select" animals with more lean meat and less fat— not only make more efficient gains but bring a higher price to the producer. In some places, buyers are being trained to purchase hogs according to "grade on the hoof."

Mr. Zavoral says that while only 15 to 17% of the 70-odd million hogs going to market in the U.S. this year are meat-type hogs, this is a big improvement over 10 years ago when the heavy, well-larded hogs were in demand.

Research at agricultural experiment stations at the University of Minnesota and other agricultural experiment stations around the nation has shown why 225 lb. or less is the best weight at which to market meat-type hogs, Mr. Zavoral says. Records on animals fed from a beginning weight of 75 lb. to 374 lb. show that daily gain begins to drop off after 175 lb. and declines rapidly after 225 lb. Also, after hogs hit about 225 lb., they tend to accumulate unprofitable fat and eat up more feed for each pound of gain.

U.S. Department of Agriculture hog carcass grades favor the meat-type animal. Grades are U.S. No. 1, 2 and 3, medium and cull. The U.S. No. 1 requirement calls for 1.3 to 1.6 in. of backfat and a carcass 28 to 30 in. long for hogs weighing 200 to 225 lb.

Backfat thickness ranges from 1.6 to 1.9 in. for U.S. No. 2 carcasses, and 1.9 in. or more for the U.S. No. 3. Medium means a slightly underfinished carcass, and cull carcasses are decidedly underfinished and produce inferior cuts.

◆

Bigger Cows Best?

Some dairymen say they don't like big cows because they eat so much. Others say they like big cows because they produce so much. Which is the right way of thinking?

Dr. W. S. Griffith, associate dairy husbandman at Virginia Polytechnic Institute, says the 1955 records for New York dairy herd improvement associations show some interesting results in favor of bigger cows. For Jersey cows, each 100 lb. increase in weight resulted in 490 lb. more milk. In the Guernsey breed, each 100 lb. increase in body weight gave a 750 lb. increase in milk production. And, in Holstein cows, each 100 lb. additional body weight accounted for 970 lb. increase in milk production per lactation.

The big cows ate more, but on the average they produced more milk and returned a higher income over feed cost than did smaller cows of the same breed, Dr. Griffith says.

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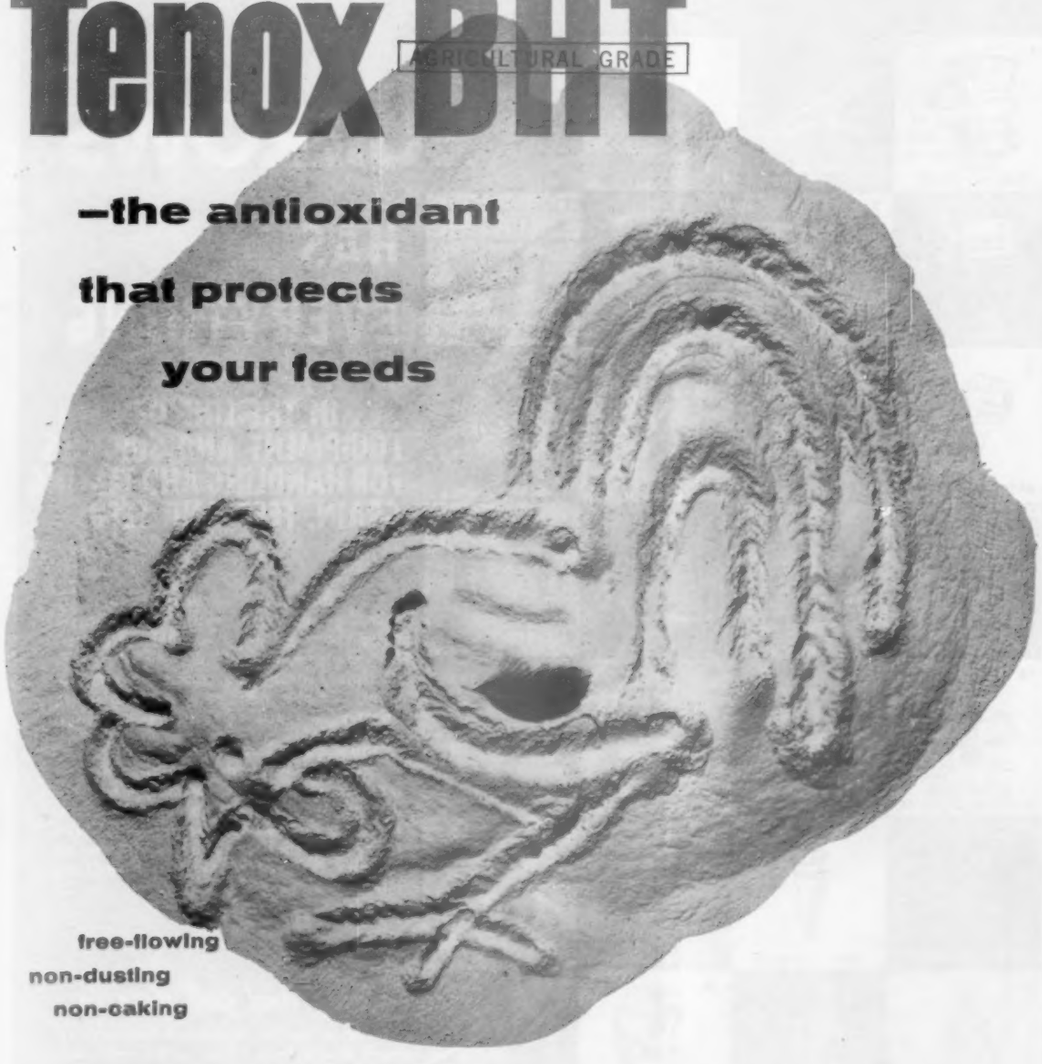

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J. D. Vance

JOINS DAFFIN — John D. Vance, Murfreesboro, Tenn., has been appointed to the stationary feed mill division of Daffin Manufacturing Co., Lancaster, Pa., it has been announced by Ira A. Daffin, president. He will be sales representative for the firm's new line of "packaged" stationary feed plants throughout Kentucky, Tennessee and Alabama. Prior to joining the Daffin organization, Mr. Vance was associated with J. B. Sedberry, Inc., in feed mill machinery sales for over 12 years.

Grain Sorghums at Peak Supply Level Despite Output Dip

WASHINGTON — Stocks of grain sorghums in all positions in the U.S. on Oct. 1 totaled 44.9 million hundredweight, 3 million more than a year ago and the largest of record, according to the Agricultural Marketing Service, U.S. Department of Agriculture.

Production of grain sorghums this season, estimated Nov. 1 at 95 million hundredweight, compared with the record of 135 million last year. Disappearance last season totaled 132 million hundredweight, an increase of 30 million over the previous season. Farm prices last season averaged $1.89 cwt., compared with $2.13 for 1954-55.

Production of grain sorghums this season on the basis of conditions Nov. 1 was estimated at 95.1 million cwt. (169.8 million bushels). This compares with 135 million hundredweight (241.1 million bushels) produced in 1955 and 79.1 million (141.3 million bushels) the 10-year average.

Despite the drouth, this year's crop is 20% above average and the fifth largest of record. About half of the production in the Southwest is from irrigated acreage. The indicated yield of 834 lb. per acre is 219 lb. less than last year and 208 lb. below the 10-year average. Dry land yields are poor and a large acreage failed to make grain.

Carry-over stocks of grain sorghums on Oct. 1 totaled 44.9 million hundredweight (80.1 million bushels). This compares with 42 million hundredweight a year earlier and 12.5 million on Oct. 1, 1954. Stocks of old crop sorghum grains on farms Oct. 1 estimated at 3.1 million hundredweight compare with 3.5 million a year earlier. Off-farm stocks totaled 41.8 million hundredweight, of which 13.3 million hundredweight were stored at terminals. On Oct. 1 the Commodity Credit Corp. owned 42.1 million hundredweight, compared with 38.1 million a year ago. Based on the estimated production and carry-over stocks, supplies of grain sorghums for 1956-57 total 140 million hundredweight, the fourth largest of record. This compares with 177 million for 1955-56 and 109.3 million the 5-year 1950-54 average.

Disappearance of grain sorghums last season totaled 132.1 million hundredweight compared with 102.2 million in 1954-55 and 56.4 million in 1953-54. The 1950-51 disappearance was the largest of record and totaled 142.9 million hundredweight. Industrial uses of grain sorghums are estimated at 4.5 million hundredweight, about the same as the previous season.

Exports last season were the second largest of record and totaled almost 37 million hundredweight. This is nearly 10 million more than in 1954-55.

Around 89.2 million hundredweight were used for feed last season, compared with 69.4 million in 1954-55 and 43.7 million in 1953-54.

Grain sorghum prices last season were at a low level at the beginning of the period. However, with a good domestic and export demand and reflecting the reduction in the crop from the drouth, prices averaged sharply above last season in the last three months. Farm prices in October, 1956, averaged $2.07 cwt., compared with $2.03 in September and $1.63 in October, 1955. At Fort Worth No. 2 Yellow Milo averaged $2.29 cwt. last season, compared with $2.51 in 1954-55 and $2.78 in 1953-54.

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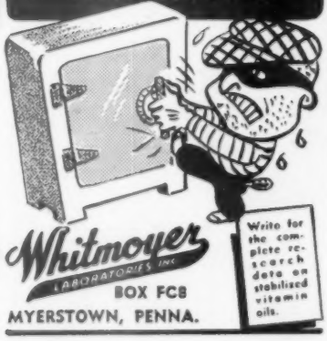

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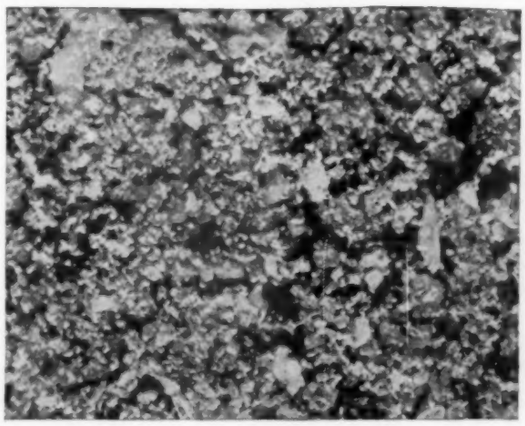

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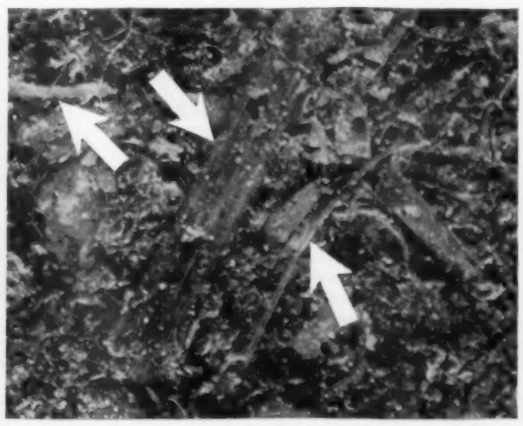

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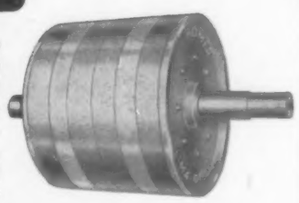

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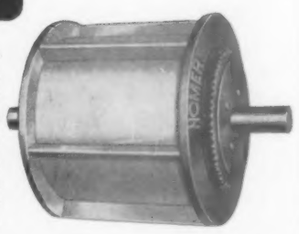

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DEPT. 165 • LIMA, OHIO

Progress Cited in Virginia's Attempt To Recapture State's Market for Eggs

HARRISONBURG, VA.—Solid progress by Virginia poultrymen in their efforts to recapture the state's egg market was evidenced here at a meeting of the Virginia Egg Council.

Topics ranging from breeds to financing to marketing was discussed as approximately 75 people from all areas of the state attended the council's first open meeting. It was formed earlier this year by the Virginia State Poultry Federation's egg committee to promote commercial egg production in the state.

Principal feed companies are becoming interested in commercial layers in order to achieve a balance for the state's poultry industry between broilers, turkeys and eggs, W. R. Shaffer, Woodstock, council chairman, reported.

Poultrymen examined reasons why only 15% of the eggs going into eight major consumption areas were locally produced whereas Virginia shipped eggs to other states until a few years ago. Only 17% of Richmond's eggs are Virginia-produced, 7% of Washington's 11% of Norfolk's and 27% of Roanoke's.

Several feed dealers in the Shenandoah Valley area appeared ready several weeks ago to launch a commercial egg program based on contracts to growers. Some already have "test runs" underway of this method of financing. However, Mr. Shaffer said that the current trend is away from contracting layers. Some feed companies are prepared to extend production credit to competent producers.

Virginia needs more than two million more layers to supply its own egg needs—enough to add $15 million more in farm income from poultry each year, it was reported. Egg handlers, it is claimed, are not satisfied with the quality of eggs shipped into the state. But Virginia cannot expect to compete in the New York or Philadelphia markets, Mr. Shaffer warned, because of the distance.

Producers should aim for flocks of at least 1,000 to 2,000, several of the experts said. "Junk" from small flocks is depressing the Virginia egg market, it was charged. Far too many quality-harming sins are committed from the hen to the consumer.

Decline of quality in Virginia eggs was listed as a principal reason the state's poultrymen have lost their markets at home. Paul R. Abbey, poultry specialist with the division of markets, emphasized the need for more quality table eggs. Egg producers, he said, should not try for a certain price but should cut costs wherever possible and put full value on the table. With Virginia flocks growing larger, Mr. Abbey noted that costs of assembling eggs should be lowered.

The commercial egg industry was urged by R. N. Graham, Richmond, egg manager for Southern States Cooperative, to be sure it has access to a nearby market before grading stations are set up. Otherwise, he warned, a helter-skelter manner of marketing may result in government controls on eggs.

Dr. Henry M. Love, head of the Virginia Polytechnic Institute agricultural economics department, listed

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four requirements for success in financing commercial egg operations: A premium on feed efficiency (a principal item of cost), quality production, a quality market outlet and a premium for improving production practices. He suggested that Virginia poultrymen consider specialized producers to supply the pullets for egg operations.

Hollis Shomo, division of markets poultry supervisor, pledged that a list of hybrid, purebred and strain crosses available in Virginia would be compiled and made available to the state's poultrymen with the birds' performance in random sample tests. He listed four reasons why Virginia's once flourishing egg business faltered: The leucosis complex took many Leghorns temporarily out of the picture, hatcheries converted almost 100% to meat-type birds, hucksters became careless and indifferent and easier financing of broilers attracted growers to change to the meat birds.

Others speaking on the program were: J. Paul Williams, federation executive secretary; A. M. West, Fincastle producer; E. C. Compton, Stanardsville, federation president; L. A. Robins, Roanoke feed man, and J. P. Flora, Virginia Crop Reporting Service.

California Field Crop Official Retires

SACRAMENTO, CAL.—V. O. Wolcott, chief of the bureau of field crops, California Department of Agriculture, retired Nov. 30, thus concluding 31 years of public service in the field of agriculture.

Mr. Wolcott, born in Salina County, Kansas, received his education in Silverton, Ore., and is widely regarded as an authority on warehouse regulatory legislation. He had formerly managed a chain of warehouses in the Sacramento Valley with headquarters in Willows. He became chief of the bureau of field crops in 1941, and in that position directed the field crop grading service and the regulation of commercial feeding stuffs and warehouses. Mr. Wolcott is widely known in official groups, farming, grain, and feed trade circles.

During his service there have been extensive revisions in commercial practices of handling and processing grain and feed which increased the volume and type of services required of the department.

Mr. Wolcott's duties have been assigned to William L. Hunter, assistant chief, who will serve as acting-in-charge of the bureau.

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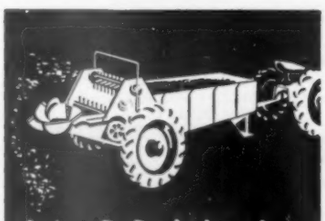
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AMINO ACIDS IN POULTRY NUTRITION

(Continued from page 16)

diet was reduced. Tryptophan could completely compensate for a partial niacin deficiency.

The chick requirement for tryptophan was shown to increase with the protein level, but at a slower rate (17). This is similar to the lysine-protein relationship.

Arginine: With casein as the principal source of protein, the need for arginine has been shown (18) to be considerably higher than was previously reported. It is not known whether this is generally true with diets containing other protein sources. Early work indicated (19, 20) that dietary creatine would cause an increase in growth of chicks fed a ration deficient in glycine and arginine as well as increasing the muscle creatine. Recent work (21) has shown very little response in growth to a creatine supplement, compared with that obtained by glycine and arginine. Additional work is needed to determine the amount of arginine which is normally used in creatine synthesis and to determine whether creatine may be of value in sparing arginine in practical rations.

Glycine: Evidence has been presented (22) that serine may be utilized to fulfill part of the requirement for glycine in the chick. Glycine, at high levels is toxic to chickens, but the toxicity may be alleviated by folic acid (23, 24). It is interesting that rations which were used for the study of the need for folic acid in poults (25, 26) contained gelatin which brought the total glycine of the ration to 2-2.5%. Further work has shown that the cervical paralysis of a folic acid deficiency may be observed on rations low in glycine although the time required for the symptoms to appear is greatly hastened by the addition of glycine to the ration. Four per cent glycine in a poult ration depresses growth severely (Table 2) in the absence of folic acid while the addition of folic acid completely prevents the growth depression. No depression was produced by serine at an equi-molar level. The results of feeding glycine and serine may be explained by the function of folic acid in a complex which is needed for the transfer of a single carbon unit to glycine in the synthesis of serine (27). Vitamin B_{12} is indicated to be important in the initial formation of the single carbon fraction from glycine.

Summary: It is important to have the best possible estimate of the amino acid needs of poultry as guides in formulating practical rations. It

Table 2—The Effect of Glycine, Serine, Betaine and Folic Acid on the Growth of Poults Deficient in Folic Acid

Supplement	Level, %	% daily gain and survival	
		No folic acid	Folic acid
None	...	7.8 8/9	9.0 9/9
Glycine	4.0	3.0 6/9	8.9 9/9
DI-Serine	5.6	9.2 8/9	9.4 8/9
Betaine HCl	0.5	8.0 8/9	9.1 9/9

FISH MEAL · FISH SOLUBLES
LIVER MEAL—VITAMIN OILS
FEATHER MEAL—FEED INGREDIENTS
ALBUMINA SUPPLY CO., INC.
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All Feed Ingredients
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FARM BUILDINGS
Honeggers' complete line of competitively priced, pre-built farm buildings are an extra "exclusive" profit plus for Honegger Dealers.

EQUIPMENT
Honegger Dealers can have equipment shipped prepaid with their cars of feed. Honeggers' full line of modern labor-saving equipment makes an excellent "door opener" for extra feed sales.

For Full Details Write or Phone Collect TODAY!

HONEGGERS'
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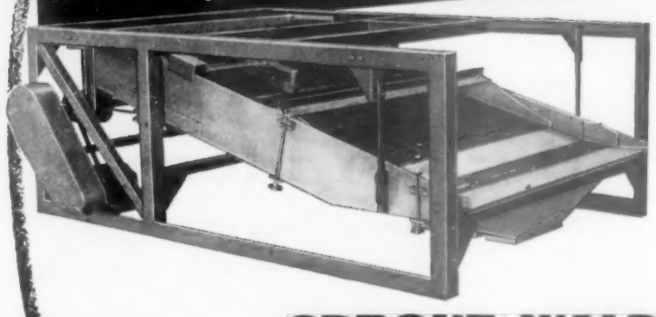
PELLET CLEANER & GRADER with SCALPER



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Double-deck shoe enables you to grade and clean both pellets and crumbles without switching screens. Grading shoe is activated by a Sprout-Waldron positive eccentric drive which does not vibrate, but is positive regardless of surge loads.

Here's a high-capacity, trouble-free machine that is the best available for the job. Available as a unit that can be installed at low cost by semi-skilled labor. Also available as part of a complete Sprout-Waldron Coolaire Cooling, Drying, Crumblizing, Cleaning, and Grading System. Write for Bulletin 120.

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FE/473

must be kept in mind, also, that several factors may influence the requirement for an amino acid in a given ration. These factors include the protein level of the ration, the energy content of the ration, the level of other specific amino acids and the level of nutrients required for the normal metabolism of the amino acids.

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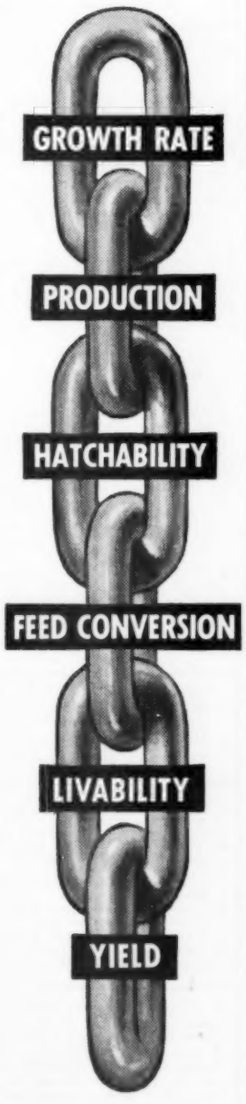

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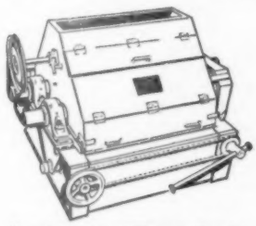

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California Devotes Increasing Acreage to Feed Grain Crops

DAVIS, CAL.—More animal and poultry feed grains are being grown in California on land formerly planted to cotton, wheat and rice, which have been under acreage allotments for the past few years.

Barley, grain sorghums, corn and soybeans are the main crops increasing in acreage on farms formerly concentrating on the acreage allotment crops, reports Dr. Dale G. Smeltzer, assistant professor of agronomy at the University of California, Davis.

For the past two years, acreage of barley has exceeded that for the preceding 10 years by 250,000 acres, Dr. Smeltzer said. Since most of this increase has been on productive lands formerly used for cotton and wheat, the average yield per acre for California has also increased.

Grain sorghums are fast gaining a competitive position on diverted acres, Dr. Smeltzer said. They are especially profitable when used in a double-cropping system following early potatoes, barley, oats or vetch hay.

Corn, while the most important field crop in the U.S., is considered as new to California. Before 1954, about 70,000 acres were grown in California each year, about half harvested for grain and the other half for forage. The average yield of grain corn was about 2,300 lb. per acre. The total crop was only about 10% of the shelled corn fed in California.

During the past three years corn acreage has risen to 216,000 acres in California, primarily in the southern San Joaquin Valley, the Sacramento-San Joaquin Delta area and the Sacramento Valley. Corn is also growing in popularity in coastal valleys and in desert areas.

Soybeans are now being planted on limited acreage, although attempts have been made for more than 35 years to establish this crop here. Some 2,000 acres were planted this year in California. An extensive program by the university is now under way to explore varieties and production and harvesting practices for this crop, Dr. Smeltzer stated.

Present indications are that California could use as much as 600,000 tons of soybeans as a source of oil, which makes up 17 to 20% of the seed.

Standard steel elevators, belt and bucket type, available from stock. Ten Heavy Duty sizes, from 300 to 10,000 Bu./Hr., for continuous service and four Light Duty sizes, from 110 to 750 Bu/Hr., for intermittent service. We also manufacture screw conveyors and hoppers. Send your requirements for complete information.
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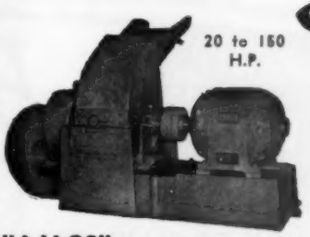

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30 to 200 H.P.
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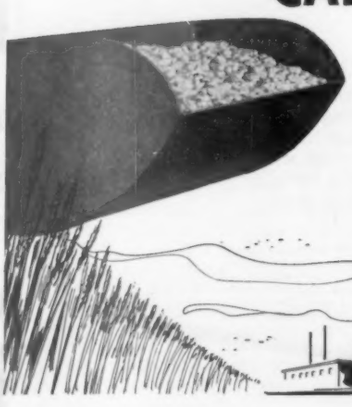

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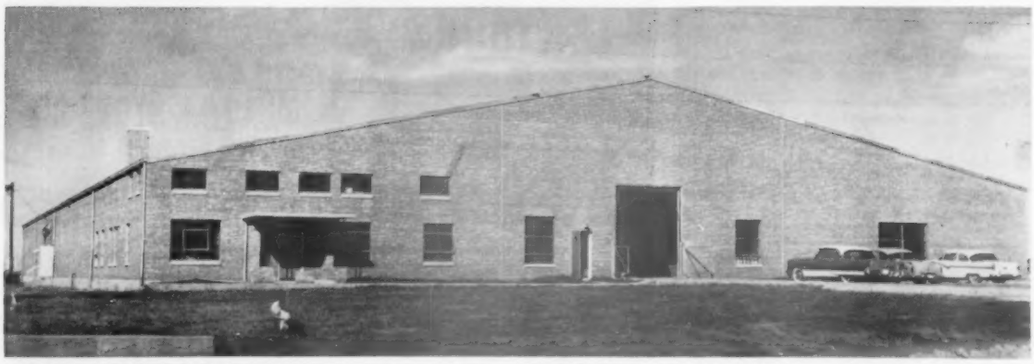

FORSTER PLANT DEDICATION—Top left: T. E. Forster, Jr., president of the Forster Mfg. Co., Wichita, introduces his mother, Mrs. T. E. Forster, Sr., at the dedication ceremonies at the new Forster plant at Ada, Okla. Dr. Charles F. Spencer, president of East Central State College, Ada, and one of the program speakers is seated at the left. Part of the group which visited the plant during the dedication is shown at the right. Top right: T. E. Forster, Jr., seated, and nephew, Paul Forster, check over some engineering plans in the drafting room of the new plant. Below: Outside view of the new Forster plant which encloses 23,300 sq. ft. of factory space.

Forster Dedicates New Plant

ADA, OKLA. — Dedication ceremonies took place here recently opening the new Ada plant of the Forster Mfg. Co., whose headquarters are Wichita, Kansas.

The building, which provides 23,300 sq. ft. of factory space, is steel and concrete block construction with brick facing.

Production began immediately on several items in the Forster line of milling and related equipment.

T. E. Forster, Jr., president of the company, and his nephew, Paul Forster, were the "honorees" as 450 industrial representatives, state officials and local dignitaries watched the dedication program.

Dr. Randall E. Klemme, director of the Oklahoma Department of Commerce and Industry, representing Gov. Raymond Gary, said that the governor and his department are "extremely proud of this newest Oklahoma industry." David Howe, president of the Ada Chamber of Commerce, described the firm as "the kind of organization we are striving to get and keep in Ada."

Later in the day the plant was opened to the general public and hundreds of citizens streamed through, looking over the varied equipment and layout of factory and office space.

T. E. Forster, Jr., in his part of the dedication reminisced of territorial day experiences in Oklahoma as a lad. He also said that he plans for himself and his employees to become a part of community life.

That new building may not long suffice for the firm was recognized by presentation to Mr. Forster, during the dedication program, of a deed to five acres adjoining the plant, which is located on the Ada Industrial Development Corp. acreage at the northeast edge of the city.

Expansion is a natural trend for T. E. Forster, Jr. Born in Missouri, he came to Oklahoma Territory in a covered wagon; the family settled near Elk City, moved in 1906 to Purcell, to New Mexico for three years and in 1911 to Enid, where he finished high school.

Then came Missouri University, where the small but competitive Mr. Forster quarterbacked the football team; followed by practice of law, work as chemist, then, in 1926, organization with his father of the Forster Manufacturing Co. at Wichita, Kansas.

The first Forster machine in the milling field was a grain scourer and the success of this unit was followed by the development of other equipment for milling, a policy of expansion which has been continuing ever since. One of the features of the dedication ceremonies was the showing of a new-type water-tank hauling unit which will be built at the Ada plant.

One of the milestones in the company's development program some years ago was the construction of the Forster wheat conditioner, a system of short-term grain tempering designed by T. E. Forster, Jr. Other equipment manufactured includes a feed dresser and shorts duster, a mobile seed cleaning and treating unit, a dust control system, and a bulk car loader, together with standard items such as hammer mills, elevator heads, conveyors, hoppers, weigh buggies and the like which go into mill construction and equipping.

The Forster company has branched outside the milling industry also in providing units used in cement plants and oilseed extraction plants. Other items developed in recent years have included a rapid calculator for banks, a bleaching and maturing system of flour and equipment for producing a "one-minute" rice product. In addition to domestic business, the firm has done considerable export trade.

Baughman Names Latin American Engineer

JERSEYVILLE, ILL. — Baughman Manufacturing Co., Inc. here recently announced the appointment of Pierre Decrouez as Latin American sales and development engineer. Mr. Decrouez will promote and establish Baughman distributorships in the various Latin American countries. He is well known in Europe and Latin America having worked in these countries since 1930 for several American companies.

Mr. Decrouez will promote the use and development of Baughman bulk material transport truck and trailer transport units, lime and fertilizer spreaders, bulk feed bodies, bulk cement bodies, feed and fertilizer blenders, refuse transport units, a complete line of portable and stationary conveyors and belt and bucket elevators.

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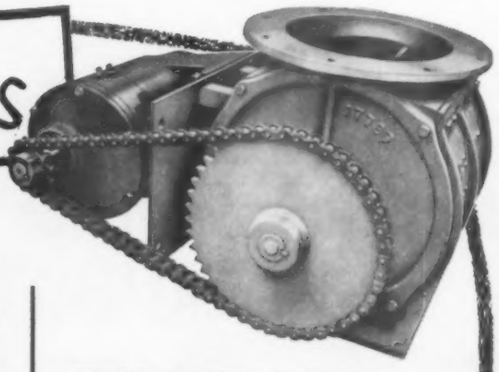

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FE/474

PRODUCTION SCHOOL

(Continued from page 1)

continuing new developments and increased complexity of feed manufacturing.

The cost study, sponsored by the Midwest association, was conducted by the Midwest Research Institute, Kansas City, with the cooperation of the U.S. Department of Agriculture and the help and guidance of the production school committee of feed men.

Report Available

(The complete report on the "Cost Model for In-Plant Operations," including work sheets for its use by mill operators, is part of the published proceedings of the 1956 school. This 20-page book, which also includes texts of talks and a new listing of equipment and equipment manufacturers, is being offered for sale to the industry at large. The proceedings, at a price of $15, may be obtained from the Midwest Feed Manufacturers Assn., 20 W. Ninth St. Bldg., Kansas City, Mo.)

In addition to the cost report, the school included talks and several specialized session discussions by authorities from feed and allied businesses on all of the various operations in feed plants. (A further review of the reports will appear in next week's Feedstuffs.)

The labor time standards for the various plant operations or "cost centers" — including ingredient receiving, grain processing, mixing, pelleting, packing, warehousing, high molasses and maintenance—are based on certain conditions and facilities in "model" mills of three 8-hour capacities, 30, 100 and 200 tons. The "model mill" approach was selected because it was impractical to attempt to set specific conditions for the wide range of capacities and conditions existing in the industry.

The primary source of facts and figures used in establishing the cost standards was personal interviews and mill tours in 42 feed mills in all three size categories in Arkansas, Iowa, Kansas, Missouri, Nebraska and Oklahoma.

Readily Attainable

The standards, it was pointed out, are readily attainable under the specified good or model conditions outlined in the report, and the figures may be regarded as practical targets for mills having less than ideal conditions since in many mills the man-hour figures are now being met in at least some phase of the operation.

The report gives man-hour standards for each of the various cost "centers," or handling and processing operations, in the model mills. The standards are based on the best conditions of plant design and equipment and completely regular production requirements.

It is necessary to read the entire report to see just how the man-hour figures were determined and to know the specific set of conditions on which the standards are based. However, a general idea of what may be done and is being done under some of the best conditions and the present application of automation in feed milling is found in some of the summary figures.

For example, labor requirements for the model mill producing 30 tons per eight-hour day are figured at about 50 man-hours for the eight-hour day. Add on foreman time of 4 man-hours and the total is about 54 man-hours for the smaller mill as described in the study. This total, and the figures below, exclude high molasses operations, which are treated separately in the report. On a man-hour-per-ton basis, the labor standards for the 30-ton model mill add up to 1⅘ man-hours. With foreman time added on, the total comes to approximately 1.8 man-hours.

Labor time standards for the 100-ton-per-day model mill total just about 89 man hours per eight-hour day, or the equivalent of about 11 men working eight hours. With foreman time added, the total goes to 97 man-hours. The labor man-hour-per-ton standard is approximately .89 for this mill. When foreman time is added, the total goes to about .97 man-hour, or a little less than 1.

For the model mill producing 200 tons of formula feed in eight hours, the labor standards for the various operations add up to approximately 145 man hours for the eight hours. With 16 foreman man hours added, the total goes to 161. On a per-ton basis, the labor standard for this mill is .724 man-hour, or a labor cost of less than ¾ man-hour per ton. Adding foreman time, the total is approximately .8 man-hour per ton.

The cost study project leader, R. J. Witherspoon of the Midwest Research Institute, pointed out that the labor time standards for ingredient receiving, processing, mixing, etc., are not unattainable, for the research men saw them being equalled or bettered. And in some cases they are being met or nearly met under circumstances more difficult than the conditions assumed for the model mill.

Only a Start

Actually, said Mr. Witherspoon, this cost research is only a start, for the standards will become obsolete as further advances in automation and further improvements in equipment and mill management are made. It probably won't be long, he indicated, before the industry will be talking about ½ man hour per ton rather than a good figure now of about 1 man hour or a little less.

Mr. Witherspoon also emphasized that a feed plant requiring twice as much labor as that indicated in the cost model may have real difficulty staying in business in the competitive feed field.

He challenged feed men to take the tool which the cost report provides and apply the time, effort and money needed to improve their operations where improvements are needed.

The cost study represents the first industry-sponsored research project of this type, but, said Lloyd Larson, executive vice president of the Midwest association, this is only a beginning. Future production schools, he said, must be based on still further research.

The future of the school is related to research, Mr. Larson said, and efforts will be made to carry forward production research. "We are thinking bigger all the time," he said, "and the schools will get bigger and better with more research."

Two Conclusions

During the course of the study, the research institute people made two conclusions which are of interest and importance to management as well as production people:

1. A large part of the production problems in feed mills is caused by conditions beyond the direct control of production people—things such as daily volume variations, seasonal variations, special formulations and rush orders cause costly delays, shutdowns and idle periods, necessitating more manpower than should be required. These problems cannot be solved effectively within the mill and, in fact, probably cannot economically be solved unless and until customers change their ways.

2. Within the limits of control of production functions, the single most outstanding deterrent to higher production rates and lower man-hours in existing mills was the shortage of storage and holding bins, both in number and capacity, throughout the mill. It is felt that substantial gains can be made toward lowering man-hours through improving production flow by installing more bin capacity in existing mills. These bins will allow better utilization of equipment capacities and man-hours as well as eliminate delays and shutdowns. Additionally, bins will be necessary to make possible use of higher speed equipment now available.

In opening the school, George Wolff, Universal Mills, Fort Worth, president of the Midwest association, noted that the event has been getting "bigger and better" each year, and he noted how it provides something practical that feed production men can take home and apply.

Industry Advances

Another opening speaker was Oscar Straube, Pay Way Feed Mills, Kansas City, chairman of the board of the American Feed Manufacturers Assn. Mr. Straube, discussing the progress of the industry, mentioned two points in connection with feed production:

1. He stressed the importance of proper handling of today's complex formulas. Formulas may now include 30 ingredients, compared with 10 or 12 not too long ago. There now are about 30 feed additives, and there probably will be 30 more in the future. All of this, along with competitive conditions, requires precision mixing, a good job of manufacturing.

2. No matter how good an operation might be, cost continues to be extremely important in feed production. And, said Mr. Straube, the cost study will help a great deal in this regard.

This is not enough, however, he pointed out. Mr. Straube called attention to the over-all primary job of serving customers and building a product that brings so much feed efficiency. With 3-lb. broilers being grown on 8 lb. of feed rather than the 12 lb. required a few years ago, there is a saving of 2.6 million tons of feed on an annual crop of 1.3 billion broilers.

Challenge to Feed Men

James C. McNeil, Pillsbury Mills, Inc., Minneapolis, chairman of the production school committee, also pointed up the challenge to feed men in improving their operations and reducing costs.

Illustrating the competitive nature of the business, he said that one third of the feed mills in the U.S. could make the 35 million tons of formula feed now produced annually. Present requirements could be met if two thirds of the mills were abolished. Meanwhile, new plants are being built faster than tonnage is increasing.

The model plants outlined in the report are not "Utopia," Mr. McNeil said, but represent good feed mill conditions put together from what was found in the study of 42 mills.

The cost information, he explained, provides a tool with which mill operators can go through their plant, analyze their operations, put man-hour figures on what they are doing and make some general comparisons.

The information can be used in various ways—in building new mills, in considering capital expenditures and possible labor savings, in putting a price tag on such things as lost time, in comparing performance of foremen and workers, in budgeting, in setting standards to be aimed at in one's own mill.

William B. House of the Midwest Research Institute stressed the importance of research to the production school. Research is the keynote of this technological age, he said, and for the first time research was the key thing in the production school.

In helping to control and reduce labor costs, Mr. Witherspoon said, the report provides three things:

1. A method to attack the labor cost problem, breaking it down into areas and individual points.

2. Basic time standard data as a starting point for cost reduction efforts.

3. Over-all target figures resulting from the application of the basic data to the model mills, thereby serving as a general comparison, a quick method to evaluate a mill.

Donald B. Butler

LEAVES AD POST—Donald B. Butler last week resigned from his position as advertising and sales promotion manager of Central Soya Co. and McMillen Feed Mills, a position he has held since 1954. Mr. Butler joined the firm as assistant territory manager in 1950 and later was made assistant to the vice president in charge of sales. He was sales promotion manager for two years before he became head of both advertising and sales promotion when the two departments were merged in 1954. Mr. Butler, who holds a master's degree in business administration from the Harvard business school, was an assistant professor of sales and retailing at the University of Dayton before joining the Central Soya-McMillen company.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
September 29	885	434	703	651	174	432	1,613	1,071
October 6	890	530	506	544	101	435	1,540	1,288
October 13	941	484	487	583	119	447	1,661	1,045
October 20	811	478	471	530	98	358	1,610	1,014
October 27	862	532	626	638	96	363	1,547	1,092
November 3	924	534	634	676	93	426	1,601	1,094
November 10	893	476	732	752	156	465	1,611	1,056
November 17	879	479	738	752	146	536	1,658	1,057
November 24	969	465	627	720	147	467	1,622	1,165
December 1	961	452	618	810	171	491	1,522	1,141

Week ending:	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
September 29	1,128	408	1,297	292	4,303	224	1,660	904
October 6	943	396	1,274	368	4,237	212	1,694	1,067
October 13	901	351	1,274	324	4,389	198	1,582	1,065
October 20	808	334	1,255	299	4,276	249	1,654	932
October 27	843	386	1,189	258	4,398	203	1,645	985
November 3	978	381	1,271	325	4,246	196	1,715	1,036
November 10	1,089	345	1,336	296	4,135	230	1,729	976
November 17	1,073	411	1,278	329	4,276	214	1,651	1,015
November 24	971	495	1,276	314	4,286	201	1,687	925
December 1	1,131	398	1,315	364	4,263	229	1,726	1,044

Week ending:	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1956	1955
September 29	1,986	261	1,861	215	136	898	21,536	17,998
October 6	1,792	252	1,996	178	134	889	21,236	18,176
October 13	1,798	310	2,006	132	136	773	21,006	18,288
October 20	1,714	284	1,826	142	90	744	19,977	18,596
October 27	1,575	232	1,756	155	87	673	20,141	18,780
November 3	1,672	230	1,686	155	119	675	20,667	18,982
November 10	1,760	231	1,749	188	143	944	21,292	19,023
November 17	1,557	292	1,742	212	112	863	21,270	19,595
November 24	1,717	258	1,628	176	125	849	21,130	19,534
December 1	1,713	293	1,638	230	170	856	21,536	20,276

THE FEED MARKETS

★ ★ ★ ★

Demand — Supply — Trends — Prices

Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Denver: Demand fair; trend unchanged; supply ample; 2,250 A, 300 D 20¢ lb.

Seattle: Demand slow; trend steady; supply good; 300 D, 2,250 A 22¢ lb., 300 D, 1,500 A 19¢ lb., 300 D, 750 A 17¢ lb., all ex-warehouse, drums included.

Chicago: Demand fair; supply plentiful; straight A feeding oil, with 10,000 units vitamin A per gram 7⅛@9¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Boston: Demand fair; supply adequate; 600 D, 1,500 A 18¢ lb.; 300 D, 2,250 A 20¢; 300 D, 1,500 A 17¢; 300 D, 750 A 15½¢.

Minneapolis: 10,000 A 38¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 19½¢ lb.; 300 D, 750 A 17½¢ lb.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13¾@15½¢, 1,500 A 15⅝@17¢, 2,250 A 17⅛@20¢, 3,000 A 19½@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19¼¢, 3,000 A 20@21¾¢; f.o.b. Massachusetts, New York or Pennsylvania.

ALFALFA MEAL

Denver: Demand slow; trend steady; supply short; 100,000 A, 17% $60.

Philadelphia: Demand dull; supply fair; 17% dehydrated $75.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $71.15@73.65; 17% dehydrated, no A $65.15@67.65; 13% fine suncured $39@56.

Los Angeles: 15% suncured $43@44—demand steady, trend firm, supply fair; 17% dehydrated $56@57—supply scarce, ready demand for anything available.

Portland: Demand slow; supply ample; trend unchanged; 15% suncured $45, delivered Portland; 15% suncured $45, f.o.b. California; dehydrated $55.

Seattle: Demand slow; trend steady; supply good; 15% protein suncured $45 ton, delivered, carlots; 136,000 A unit dehydrated $66 ton, delivered, carlots.

Ft. Worth: Demand good; supply limited; California origin dehydrated meal or pellets, truck $67, delivered Ft. Worth; suncured: South Dakota No. 1 13% protein, ¼ in. grind, rail shipment $52, prompt; Colorado No. 1 $52; California 15% pellets $59, delivered Ft. Worth, truck.

Kansas City: Demand active; trend steady to higher; supply limited with offerings nil except from blenders; 17% protein dehydrated alfalfa meal with 100,000 units vitamin A guaranteed on arrival $62@62.50, sacked, f.o.b. Kansas City; 15% protein 125,000 units A $65.50; 100,000 A pellets $58.50, bulk; non-guaranteed A meal $56.50, Kansas City, $54 Omaha, sacked; suncured, No. 1 fine ground $46.50@47, sacked; No. 1 ¼-in. $43@44, No. 2 ¼-in. $41@42, sacked, Kansas City.

Memphis: Demand poor; supply limited; trend unchanged; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $69.75.

Buffalo: Demand and supply fair; trend steady; $76, sacked, Boston.

Boston: Demand and supply steady; dehydrated 17% $72; suncured 13% $55.90, nominal.

Omaha: Demand fair; supply ample; 17% dehydrated, 100,000 A, papers or burlaps $61.

Minneapolis: The market continues firm, with demand steady. Quotations: 17% dehydrated, 100,000 units of vitamin A guaranteed on arrival $66.75@67.25, granules or oil treated $66.25, bulk; 18% dehydrated, 125,000 units of vitamin A guaranteed $70.25, granules and oil treated $69.25, bulk.

St. Louis: Demand good; trend higher; supply adequate; dehydrated, 17%, 100,000 A $66 ton; suncured No. 1 fine ground 13% $52, f.o.b. St. Louis.

Chicago: Demand slow; supply tight; 17% dehydrated, with 100,000 units vitamin A guaranteed $66@67; 17% with no A guaranteed $60; 13% suncured $51@51.50.

New Orleans: Demand good; trend higher; supply limited; 17% dehydrated, vitamin A guaranteed $72@74.50; non-guaranteed $65@67; pelleted $70@72; 15% $62@64.

ALFALFA PELLETS

Denver: Demand slow; trend steady; supply short; 100,000 A, 17% $63.

Omaha: Demand and supply fair; 17% dehydrated, 100,000 A, bulk $57, papers or burlaps $61.

ANIMAL FATS (STABILIZED)

Louisville: Demand good; trend steady; supply ample; bleachable white 7¾¢ lb.; white tallow 7¼¢ lb.; yellow grease 6½¢ lb.

Los Angeles: Demand fair; trend steady; supply ample; bleachable fancy tallow 7¢; yellow grease 6¼¢.

St. Paul: The market remains firm, with demand good, both in export channels and from the feed trade. Quotations: 7¾¢ lb. for bleachable fancy tallow, f.o.b. producers' plants.

Kansas City: Demand good; trend steady; supply ample; prime tallow 7¾@7½¢ lb.; bleachable fancy yellow 7½@7¾¢ lb.

Denver: Demand good; trend steady; supply fair; prime tallow 7¼¢.

Chicago: Demand fair; supply fair; bleachable fancy tallow, tank truck or carlots 7¾¢ lb., yellow grease 6¾¢.

Ft. Worth: Demand good; supply sufficient; prime tallow, tank cars 7¾¢ lb.; drums 9¼¢, f.o.b. north Texas packing plants, with returnable drums.

BARLEY FEED

Ogden: Supply average; rolled $54@59; whole barley $47@52.

Philadelphia: Demand dull; supply fair; pulverized $51.50.

Milwaukee: Demand good; supply fair; needles $1.07@1.18; ground $27.

Boston: Demand slow; supply light; pulverized $52.75, nominal.

Portland: Demand good; trend higher; supply ample; rolled $63; ground $61.

Seattle: Demand fair; trend steady; supply good; whole barley $60 ton, ground barley $60 ton, rolled barley $61 ton, all ex-warehouse, l.c.l., sacked.

Chicago: Demand good; supply light; $44.

Baltimore: Demand good; supply light; $53.50.

New Orleans: Demand fair; trend steady; supply adequate; pulverized $54@56.

Los Angeles: Demand fair; trend steady; supply ample; standard rolled $3.41; standard ground $3.37.

BENTONITE (SODIUM)

Denver: Demand fair; trend unchanged; supply ample; $26.50, f.o.b. Denver warehouse.

Chicago: Demand very good; supply adequate; f.o.b. Wyoming and South Dakota shipping points: granular, 20 mesh $15.50; fine granular, 80-100 mesh $12.75; powder, 200 mesh $12.50; f.o.b. Belle Fourche, S. D., minimum 30 ton carlot: 80 granular $12.50 net, 200 mesh fine $12.25 net.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply ample; $80@85 ton.

BLOOD MEAL

Chicago: Demand fair; supply adequate; $100@120 ton, guaranteed 80% protein.

Seattle: Demand slow; trend steady; supply good; $80 ton, ex-warehouse, truck lots.

New Orleans: Demand fair; trend firm; supply adequate; $95@100, protein guaranteed.

Denver: Demand spotty; trend steady; supply ample; $75, unground.

Portland: Demand good; supply ample; trend unchanged; $95.

Ogden: Supply average; $97.50 ton in 100-lb. bags, f.o.b. Ogden.

Louisville: Demand good; trend firm; supply normal; $80@85 ton.

Cincinnati: Demand fair; trend steady; supply adequate; $110.

Los Angeles: Demand fair; trend steady; supply ample; $5 a unit of ammonia.

BONE MEAL (STEAMED)

Los Angeles: Demand fair; trend steady; supply ample; $89.50, domestic.

Cincinnati: Demand good; trend steady; supply adequate; $80 ton, sacked, f.o.b. Cincinnati.

Omaha: Demand slow; supply ample; $80.

Buffalo: Demand good; trend steady; supply limited; $85 ton, sacked.

Boston: Demand and supply steady; $85.

Louisville: Demand slow; trend steady; supply ample; $70@75 ton.

Denver: Demand fair; trend steady; supply ample; $77.50, f.o.b. West Coast.

Portland: Demand slow; supply ample; trend unchanged; $90.

St. Louis: Demand good; trend steady; supply adequate; $90@95 ton, sacked.

Ft. Worth: Demand fair; supply adequate; $85, sacked, f.o.b. Ft. Worth, local manufacture.

Chicago: Demand slow; supply adequate; $85.

Seattle: Demand and trend steady; supply good; $85 ton, ex-dock, truck lots.

New Orleans: Demand good; trend steady; supply adequate; $95@90, ex-dock, New Orleans.

BREWERS DRIED GRAINS

St. Louis: Demand good; trend higher; supply adequate; $48 ton bulk, $53 ton sacked.

Ft. Worth: Demand fair; offerings scarce; 26% $66.10, delivered Ft. Worth, December.

Chicago: Demand slow; supply light; 26% $58.50.

Boston: Demand active; supply tight; domestic 26% $65; Canadian 22% $65.

Buffalo: Demand and supply poor; trend steady; $58, bulk, Boston.

Milwaukee: Demand good; supply fair; $57.

New Orleans: Demand slow; trend easier; supply light; 26% $57.50@60.

Cincinnati: Demand fair; trend steady; supply fair; $63@64.

Philadelphia: Demand slow; supply light; $68.

Louisville: Demand fair; trend easy; supply good; $56 ton.

Los Angeles: Demand fair; trend steady; supply ample; sacked $59, bulk $52, f.o.b. Van Nuys.

BREWERS DRIED YEAST

Los Angeles: Demand good; trend steady; supply limited; 9¢, 5 tons or over.

Louisville: Demand slow; trend steady; supply good; 10¢ lb.

Omaha: Demand good; supply adequate; 11¢ lb.

Buffalo: Demand good; trend steady; supply limited; $10.75 cwt.

Boston: Demand good; supply fair; 11¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11½¢.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11½¢.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11½¢.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10¼¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

St. Louis: Demand fair; supply adequate; 10¢ lb. in carlots; 10½¢ lb. in 5-ton lots; 11¢ lb. in ton lots; 11½@12¢ lb. in less than ton lots.

Milwaukee: Demand good; supply limited; 10½@11½¢ lb. in carlots; 10¾@12½¢ lb., l.c.l.

Denver: Demand fair; trend unchanged; supply ample; $11 cwt.

Portland: Demand slow; supply ample; trend unchanged; 13½¢.

Chicago: Demand good; supply limited; 10@11½¢ lb. in carlots; 10¼@12½¢, l.c.l.

Milwaukee: Demand good; supply limited; 10½@11½¢ lb., in carlots; 10¾@12½¢, l.c.l.

BUTTERMILK-CONDENSED

Chicago: Demand fair; supply adequate; $3.25@3.50 cwt. in carlots.

New Orleans: Demand fair; trend steady to firm; supply adequate; 100-lb. drum $4.75@4.90.

Los Angeles: Demand fair; trend steady; supply ample; 100-lb. drum $5.50; large barrels $4.75.

Louisville: Demand slow; trend steady; supply ample; $4.25 cwt.

Ogden: Supply normal; $4.90, 100-lb. drum.

Philadelphia: Demand slow; supply fair; $4.25, barrels.

Portland: Demand slow; supply ample; trend unchanged; $4.75.

Boston: Demand fair; supply light; $3.75 cwt.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $13.97, flour $9.72.

Buffalo: Crystals $14.74, flour $10.47.

Toledo: Crystals $16.39, flour $12.14.

Boston: Crystals $15.18, flour $10.93.

Limecrest, N.J.: Crystals $9.75, flour $5.50.

CALCIUM CARBONATE

Seattle: Demand steady; supply good; trend steady; $14 ton, ex-warehouse, truck lots.

Minneapolis: Plain $11; iodized (⅛ lb. KI per ton) $14.45; iodized manganesed $15.90, in 100-lb. bags.

Chicago: Plain $8.90 ton in 100-lb. bags, delivered.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9.

Los Angeles: Demand fair; trend steady; supply ample; feed and flour $10.53 ton, carloads; grits $13.03 ton, carloads.

CHARCOAL

Los Angeles: Demand fair; trend steady; supply ample; poultry charcoal, oak, 40-lb. bags $176 in ton lots.

Boston: Demand and supply light; $95, nominal.

Chicago: Demand quiet; supply limited; poultry charcoal $102 ton in 50-lb. multiwalls.

COCONUT MEAL

Seattle: Demand slack; trend steady; supply limited; $72 ton, ex-dock, 30-day shipment from Philippines.

Portland: Demand slow; supply ample; trend unchanged; $72.

Los Angeles: Demand limited; supply adequate; trend steady; cake, ex-dock, offshore, December $71@72.

COD LIVER OIL (FORTIFIED)

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 16⅛@19¢, 2,250 A 18⅛@21¢, 3,000 A 21⅛@23¢; 600 ICU, 1,500 A 18@19¼¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

Boston: Demand slow; supply ample; 600 D, 2,250 A 22¢ lb.; 300 D, 2,250 A 21¢; 300 D, 1,500 A 18½¢.

CONDENSED FISH SOLUBLES

Los Angeles: Demand good; trend firm; supply light; 4¢.

Boston: Demand good; supply short; 4¢ lb., nominal.

New York: Demand good; trend steady; supply limited; 4½¢ lb., f.o.b. eastern shore.

New Orleans: Demand good; supply very limited; trend steady; 50% solids, menhaden $80@81.

CORN GERM MEAL

St. Louis: Demand good; trend higher; supply ample; $47 ton, bulk; $52 ton in burlap sacks, St. Louis.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $53.08, meal $71.08.
Atlanta: Feed $62.69, meal $80.49.
Birmingham: Feed $60.74, meal $78.74.
Boston: Feed $59.61, meal $77.60.
Chicago: Feed $49, meal $67.
Cleveland: Feed $56.31, meal $74.31.
Denver: Feed $58.37, meal $76.37.
Ft. Worth: Feed $56.93, meal $74.93.
Indianapolis: Feed $53.74, meal $71.74.
Kansas City: Feed $49, meal $67.
Louisville: Feed $53.30, meal $71.30.
New Orleans: Feed $58.27, meal $76.27.
New York: Feed $59.20, meal $77.20.
Norfolk: Feed $58.37, meal $76.37.
Philadelphia: Feed $58.78, meal $76.78.
Pittsburgh: Feed $56.93, meal $74.73.
St. Louis: Feed $49, meal $67.

CORN OIL MEAL

Cincinnati: Demand fair; trend strong; supply adequate; $67.10@68.10.

Louisville: Demand slow; trend firm; supply normal; $67.10 ton.

COTTONSEED OIL MEAL

Wichita: Demand slow; supply sufficient; 41% old process $67; solvent $66@67.

Ft. Worth: Demand good; offerings immediate shipment light; carlots, 41% old process $62, f.o.b. central Texas mills; solvent 41% low gossypol $66@67, delivered Ft. Worth; pellets $2 additional; cottonseed hulls $33@34, delivered Ft. Worth.

Chicago: Demand slow; supply plentiful; hydraulic $68.50@69; solvent $68@68.50.

Seattle: Demand slow; trend easy; supply good; $76 ton, delivered, truck lots, 41% expeller process.

New Orleans: Demand good; trend steady; supply limited; 41% old process $77@77.50.

Los Angeles: Demand good; trend steady; moderate offers; $64, local.

Portland: Demand slow; supply ample; trend unchanged; $64, f.o.b. Los Angeles.

Cincinnati: Demand fair; trend steady; supply fair; solvent $68; old process $69.50.

Philadelphia: Demand dull; supply fair; $73.

Denver: Demand fair; trend steady; supply ample; $69@70.

Louisville: Demand slow; trend strong; supply ample; old process $67.10 ton; new process $65.10 ton.

Ogden: Supply normal; 41% $68@73.

Omaha: Demand slow; supply tight; 41% solvent $73; range size $76.

Buffalo: Demand and supply fair; trend steady; $75.50, sacked, Boston.

Boston: Demand slow; supply adequate; $74.75.

Kansas City: Demand slow; trend slightly weaker; supply ample on old process, little on solvent for nearby; $58@59, sacked, Memphis, for old process, nearby; $57@58, sacked, Memphis, for solvent, nearby; for late December and January forward solvent is being sold for $55.50@56.50.

Atlanta: Demand good; trend steady; supply ample; 41% $62, sacked, immediate.

Memphis: Demand fair; trend irregular; supply ample; prime 41% old process $58, sacked; new process 41% solvent $56.50@57, sacked.

D ACTIVATED ANIMAL STEROL, POWDERED

New York: Trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

Kansas City: Demand and supply normal; trend steady; 10½@11¢ lb.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢; 3,000 ICU 18¢, warehouse.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb., 15¢ lb.; ton lots and less 17¢; 12,000,000 units per lb., 5 tons to a carload 28¢ lb.; ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: $49.50.
Houston: 19% $69.50.
Wales, Tenn.: $64.10.
Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17% $53 net ton, f.o.b. Coronet in 100-lb. multiwall bags, $55 in bulk.

DICALCIUM PHOSPHATE

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $89.06 ton, delivered; $3 ton less in bulk.

Trenton, Mich.: Minimum phosphorus 21%, maximum fluorine .01% guaranteed $90.30, f.o.b. Trenton in 100-lb. multiwall bags; minimum phosphorus 18½%, maximum fluorine .01% guaranteed $79.55, f.o.b. Trenton in 100-lb. multiwall bags.

Columbia, Tenn.: Minimum phosphorus 18⅛%, minimum 25% calcium, maximum .01% fluorine guaranteed $79.55 ton, f.o.b. Columbia, in 100-lb. multiwall bags. Freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Chicago: Demand fair; supplies adequate; stock food grade, 18.5% phosphorus, 20,000 lb. or more $79.55 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn., less than 20,000 lb. $89.55; 21% phosphorus, 20,000 lb. or more $90.30, basis Chicago Heights and Nashville, less than 20,000 lb. $100.30; freight equalized with St. Louis, Trenton, Mich., and Godwin, Tenn.; bulk boxcars or hoppers, $3 net ton less than bagged material.

Bonnie, Fla.: Demand improving; supply adequate; minimum phosphorus 18½%, granular $79.55; freight equalized with closest dicalcium phosphorus producing point, carload basis.

Cincinnati: 18% phosphorus $88@89.

Portland: Demand good; supply ample; trend unchanged; $100.

Denver: Demand fair; supply ample; trend unchanged; $83.50, f.o.b. plant, St. Louis.

DISTILLERS DRIED GRAINS

Philadelphia: Demand slow; supply very light; $65.50.

Buffalo: Demand fair; trend steady; supply poor; $65, bulk, Boston.

Boston: Demand active; supply tight; domestic dark $64.50, bulk.

Louisville: Demand good; trend steady; supply light; bourbon, light $58.50, dark $60.50, solubles $80.

Cincinnati: Demand fair; trend steady; supply fair; $60@63.

DRIED BEET PULP

Cincinnati: Demand fair; trend steady; supply adequate; $60@62.

Ogden: Supply normal; $45@50 ton.

Los Angeles: Demand good; trend on strong side; supply limited; $57.50@58.50, paper bags.

Buffalo: Demand poor; trend steady; supply fair; $66, sacked, Boston.

Boston: Demand slow; supply ample; $65@66.50.

Chicago: Molasses pulp $56.25, plain pulp $56.50.

Atlanta: Demand fair; trend steady; supply ample; $71.30, sacked, immediate.

Milwaukee: Demand and supply fair; plain $57, molasses $57.

Ft. Worth: Demand slow; supply moderate; carlots, 50-lb. papers $65@66, delivered Ft. Worth, December shipment.

Seattle: Demand slow; trend steady; supply good; $52 ton, delivered, carlots.

New Orleans: Demand slow; trend steady; supply adequate; $54@56.

DRIED BUTTERMILK

Wichita: Demand slow; supply adequate; $8 cwt.

Ft. Worth: Demand very low; supply light; local production $12 cwt., f.o.b. Ft. Worth.

Milwaukee: Demand and supply fair; $10.75.

Buffalo: Demand good; trend steady; supply limited; $9.05 cwt.

Minneapolis: Market steady at $8.50@9 cwt.

Boston: Demand and supply fair; 11¢ lb.

Chicago: Demand improving; supply light; medium acid $8.50@8.75; sweet cream $8.77@9.25 cwt., in carlots.

New Orleans: Demand slow; trend steady; supply light; $10@11 cwt.

Ogden: Supply average; $7.25, 100-lb. bag.

Louisville: Demand fair; trend firm; supply ample; 9@9½¢ lb.

Los Angeles: Demand fair; trend steady; supply ample; 11¢.

DRIED CITRUS PULP

New Orleans: Demand good; trend steady; supply light; $41@43, Florida points origin.
Buffalo: Demand poor; trend steady; supply fair; $36, sacked, f.o.b. Florida points.
Atlanta: Demand fair; supplies ample; trend steady; pulp $43, meal $38, sacked.
Boston: Demand poor; supply adequate; $33.50@34, f.o.b. Florida.
Los Angeles: Ready demand; trend firm; very little offered; f.o.b. southern California producers' plants: orange $50.50 sacked, $45.50 bulk.

DRIED SKIM MILK

Portland: Demand good; supply ample; trend unchanged; 12½¢.
Cincinnati: Demand fair; trend steady; supply adequate; 11@12¢.
Ogden: Supply average; $15.15, 100-lb. drum.
Philadelphia: Demand slow; supply fair; $11.50.
Minneapolis: Market unchanged at $10.50 @11 cwt.
Buffalo: Demand fair; trend easier; supply ample; $11 cwt.
Boston: Demand good; supply fair; l.c.l. 12½¢ lb.
Louisville: Demand fair; trend firm; supply normal; 11½@12¢ lb.
Los Angeles: Demand fair; trend steady; supply ample; $13.75.
Chicago: Demand fair; supply adequate; $10.50@11 cwt. in carlots.
New Orleans: Demand good; supply ample; trend steady; $11.50@12.50 cwt.

DRIED WHEY

Denver: Demand fair; supply ample; trend unchanged; $7 cwt., $6 carlots.
Seattle: Demand slow; supply ample; trend steady; $6.50 cwt., ex-warehouse, l.c.l.
Chicago: Demand fair to good; supply light; $5.35 cwt. in carlots.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6.25 cwt., sacked, delivered Ft. Worth or any Texas point or in ton lots, f.o.b. warehouse, Ft. Worth.
New Orleans: Demand fair; trend steady; supply sufficient; $6@6.50 cwt.
Portland: Demand good; supply ample; trend unchanged; $4.95.
Cincinnati: Demand fair; trend steady; supply adequate; $5.25 cwt.
Ogden: Supply average; $6.90, 100-lb. bag.
Philadelphia: Demand slow; supply fair; $6 cwt.
Louisville: Demand good; trend firm; supply ample; 6½¢ lb.
Los Angeles: Demand fair; trend steady; supply ample; plants $5.55; f.o.b. Los Angeles warehouses $6.10.
Minneapolis: Market unchanged at $5@5.50 cwt.
Boston: Demand poor; supply plentiful; $5.85 cwt.
Buffalo: Demand and supply fair; trend steady; $6 cwt.
Kansas City: Demand and supply normal; trend steady; straight grade $6.25 cwt. delivered or $5.25, f.o.b. plant, plus freight, whichever is lower; partially delactosed $6.40.

FEATHER MEAL (HYDROLYZED)

Boston: Demand steady; supply adequate; 85% crude protein, 70% digestible $80, f.o.b. Maine; $88, f.o.b. Delaware.

FISH MEAL

Los Angeles: Demand good; trend on stronger side; supply scarce; $2.20@2.25 a unit of protein.
Portland: Demand slow; trend lower; supply ample; f.o.b. Vancouver $2; f.o.b. California $2.10.
Minneapolis: Market steady at $2.18 a unit of protein, West Coast, for 70% herring meal and $145@150, delivered, for 60% meal.
Louisville: Demand better; trend steady; supply ample; $150 ton.

FEED INGREDIENTS
Fish Meal • Scrap • Solubles
Bigelow Sales Company
Produce Exchange Building
2 Broadway NEW YORK 4, N. Y.
Tel. HAnover 2-9195

Cincinnati: Demand fair; trend steady; supply fair; $148@150.
Ogden: Supply average; $2.20 a unit, f.o.b. Coast; 65% $171@173.
Milwaukee: Demand and supply fair; $162.
Atlanta: Demand fair; trend strong; supply limited; 60% $152, sacked, immediate, nominal.
Buffalo: Demand good; trend steady; supply limited; 60% protein menhaden $148 ton, bulk; $153, sacked.
New Orleans: Demand light to none; trend steady; supply limited—Gulf fishing poor account rough weather; 60% menhaden $140@142, burlaps; scrap $136@138; crude fish oil, menhaden $9@10, imported.
Ft. Worth: Demand fair; supply sufficient; 63% South African pilchard with solubles $145; Norwegian herring full meal with solubles $164.50, f.o.b. Houston.
Chicago: Demand fair to good; supply limited; eastern menhaden fish meal, 60% protein $142; western blended, 60% protein $130; Gulf $145; Northwest herring-salmon blend $130; Canadian herring, 73% protein $2.13@2.18 a unit of protein, all f.o.b. producing points; 60% blended $152; delivered Midwest points; January $154.
Seattle: Demand slow; trend steady; supply good; $2 a unit protein, ex-dock, carlots.
Denver: Demand fair; trend unchanged; supply ample; $2 a unit, f.o.b. Seattle.
Boston: Demand active; supply limited; $140.

HAY

Denver: Demand slow; trend steady to strong; supply ample; baled alfalfa $34@36; baled mountain $38@40.
Seattle: Demand fair; trend steady; supply good; $35 ton, delivered, truck lots, U.S. No. 2 green.
Boston: Demand and supply steady; No. 2 timothy $36@38.
St. Louis: Demand good; trend higher; supply adequate; alfalfa, first and second cutting $18@20 ton; alfalfa, third and fourth cutting $22@24 ton; prairie (Kansas) $38@39 ton; timothy and clover mixed (Missouri and Illinois) $26@28 ton; wheat straw $16@17 ton.
Ft. Worth: Demand good; offerings light; carlots, baled, No. 1 alfalfa $45@48, No. 2 $43@46; prairie No. 2 $39.50@41.50, delivered TCP on 50% drouth freight rate.
Wichita: Demand slow; supply very light; prairie $30, alfalfa $40.
New Orleans: Demand slow; trend higher; supply adequate to plentiful; baled alfalfa No. 1 $66@68; timothy and clover mixed $64@66; Kansas prairie $50@52.
Los Angeles: Demand moderate; trend steady; supply ample; U.S. No. 1 $31@33; U.S. No. 2, leafy $28@30; U.S. No. 2, green $27@28; U.S. No. 2 $25@26.
Louisville: Demand dull; trend steady; supply heavy; alfalfa, No. 1 $30 ton, No. 2 $28; mixed timothy and clover, timothy or clover, No. 1 $25, No. 2 $23; straw, any variety $20@22 ton.
Ogden: Supply normal; $1.10 bale; $21@24 ton in the barn.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 timothy hay $22.50; No. 1 red clover $24; No. 1 second cutting green alfalfa $26; No. 1 red clover mixed $26; wheat or oats straw $22.
Portland: Demand slow; supply ample; trend unchanged; $35.
Philadelphia: Demand slow; supply fair; $28@29.

HOMINY FEED

Louisville: Demand fair; trend stronger; supply normal; $50.20 ton.
Milwaukee: Demand good; supply fair; $51.50, sacked, Milwaukee.
Buffalo: Demand fair; trend steady to lower; supply good; $55, bulk, Boston.
Boston: Demand slow; supply good; $55 @55.50.
Kansas City: Demand fair; trend stronger; supply tight; white $46@46.50, yellow $47@47.50, bulk, Kansas City; $3.50 more for sacks; last half of December 50¢ higher.
Memphis: Demand nil; trend unchanged; supply ample; white $54, yellow $54.
Cincinnati: Demand fair; trend steady to stronger; supply adequate; $51.25@52.
Seattle: Demand fair; trend steady; supply good; $62 ton, delivered, carlots, sacked.
New Orleans: Demand fair; trend steady; supply adequate; $60.50@62.50.
Chicago: Demand fair; supply adequate; $48.

LINSEED OIL MEAL

Minneapolis: Market somewhat easier, with pressure from resales influencing the market. Quotations: 34% $51.50@52.50, bulk, Minneapolis.
Wichita: Demand slow; supply sufficient; 34% $69.
Chicago: Demand fair; supply adequate; solvent $61.50@62; expeller $71.50.
Seattle: Demand slow; trend steady; supply good; $82 ton, delivered, carlots, sacked.
Ft. Worth: Demand slow; supply adequate; carlots, 34% or better, January $76.05, delivered Ft. Worth; pellets $2.50 premium.
New Orleans: Demand slow; trend stronger; supply ample; 32% or better $75@77.
Philadelphia: Demand dull; supply fair; $74.
Kansas City: Demand fair; trend weaker; supply ample; $51@52.50, bulk, Minneapolis; possible to purchase through March at same level.
Milwaukee: Demand fair; supply good; old process $71.25, new process $61.25.
Omaha: Demand fair; supply ample; 32% expeller $75.50, pellets $78; 36% solvent $66, pellets $68.50.
Boston: Demand quiet; supply spotty; 32% $77.67 bulk.
Louisville: Demand slow; trend easy; supply ample; old process $78.10; new process $69.10.
Denver: Demand slow; trend steady; supply ample; $76.
Portland: Demand slow; trend higher; supply scarce; $70, f.o.b. Los Angeles.
Cincinnati: Demand fair; trend steady; supply adequate; new process $68; old process $78.
Los Angeles: Demand and trend steady; supply ample; $72@73.

MALT SPROUTS

St. Louis: Demand fair; trend steady; supply adequate; No. 1 bulk $43 ton, No. 1 sacked $48 ton, No. 2 bulk $41 ton.
Chicago: Demand slow; supply adequate; No. 1 $47.50@48.
Milwaukee: Demand good; supply fair; oddweights $48, evenweights $50.
New Orleans: Demand slow; supply adequate; trend steady; No. 1 $47.50@48.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $55.

MEAT SCRAPS

Cincinnati: Demand fair; trend steady; supply adequate; 50% $67 ton, sacked, f.o.b. Cincinnati.
Portland: Demand slow; supply ample; trend unchanged; $1.50.
Louisville: Demand fair to good; trend firm; supply normal; $70@75 ton.
Ogden: Supply average; $32.50 ton in 100-lb. bags.
St. Paul: Market firmer at $76 for 60% meat and bone scraps.
Los Angeles: Demand good; trend steady; moderate offers; $1.60@1.65 a unit of protein.
Omaha: Demand slow; supply ample; $75.
Kansas City: Demand fair with country trade buying the most; trend steady; supply ample; 50% meat and bone scrap $70 @72, sacked.
Buffalo: Demand just fair; trend steady; supply ample; 50% meat scraps $67.50 ton bulk, $71 sacked.
Boston: Demand cautious; supply adequate; $1.05 a protein unit; converted 50% $65.
Wichita: Demand fair; supply ample; 50% $77.50, f.o.b. plant; 55%, no quotations, no offerings.
Denver: Demand very slow; trend steady; supply ample; 50% protein $60@62.
St. Louis: Demand slow; trend lower; supply ample; 50% $71@73 ton bulk, $76@78 ton in paper sacks, $75@77 ton in burlap sacks.
Chicago: Demand and supply fair; 50% protein $65@76; 55% $85.
Seattle: Demand fair; trend steady; supply good; $75 ton, ex-warehouse, 50% protein.
New York: Demand fair; trend steady; supply good; 50% $70, 55% $75, bulk; 50% $73, 55% $78, sacked.
Ft. Worth: Demand fair; supply ample; meat and bone, 50% $66@68, f.o.b. or delivered, Ft. Worth.
New Orleans: Demand fair; trend steady to easier; supply adequate; 50% meat and bone $78@80.

MILLET

St. Louis: Demand fair; trend firm; supply scarce; recleaned Early Fortune $4.40 cwt., sacked; recleaned White Proso $4.50 cwt., sacked.

MILLFEED

Minneapolis: Millfeeds held firm this week, with offerings limited and fairly good buying interest evident. Quotations: bran $44@45, standard midds. $44@44.50, flour midds. $46@47, red dog $47@49.
Kansas City: Demand good; trend trifle stronger; supply not too plentiful; quotations Dec. 5: $38.50@39, shorts $40@40.50, middlings $39.75@40.25, bulk, Kansas City; bran $41@41.50, shorts $41.50@42, sacked, Kansas City.
Omaha: Demand and supply good; bran $41.25, shorts $41.50; standard midds., bulk $41.
Ft. Worth: Demand limited; supply moderate; carlots, burlaps, prompt, bran $48 @49; gray shorts $48@49, delivered Texas common points; 50¢ lower on both bran and shorts compared with previous week.
Denver: Demand fair; trend steady; supply ample; bran $45, shorts $45, mill run $45.
Wichita: Demand fair; supply ample; basis Kansas City, Dec. 4: bran $41.50@42, shorts $41.50@42; both bran and shorts advanced 50¢ ton, compared with the previous week.
Chicago: A slow week for millfeed trading was chalked up during the period ending Dec. 5. Prices were irregular, with bran even to slightly higher, standard midds. easier, and flour midds. and red dog quite weak. Some steadiness was apparent near the end of the period, however, reflecting some tightness in supplies in the Northwest: bran $46@46.50, standard midds. $46@46.50, flour midds. $49@50, red dog $50@52.
St. Louis: Demand fair; trend steady; supplies adequate; bran $45.50@46, shorts $45.75@46.25, St. Louis switching limits.
Cincinnati: Demand fair; trend steady; supply adequate; bran $51.25@52, middlings $51.25@52.
Louisville: Demand good; trend steady; supply normal; bran $50.75, mixed feed $51.25, shorts $50.75, middlings $54.25.
Buffalo: Sales were spotty. Buyers took to the sidelines after a break in grains in hopes for lower levels. Bran ended off 50¢, middlings were unchanged and heavy feeds were down $1@1.50. Quotations Dec. 5: bran $48@49, standard midds. $48.50@50.50, flour midds. $52@54, red dog $52@54.
New York: Demand and supply good; trend upward; bran $56@56.50, standard midds. $57.50@58.
Boston: Demand casual; supply ample; Canadian bran $54.50; Canadian midds. $56 @56.50.
Philadelphia: Demand dull; supply ample; bran $56, standard midds. $57, red dog $62.
New Orleans: Demand fair; trend lower; supply limited; bran $50@51; shorts $50 @51.
Memphis: Demand poor; trend little off; supply ample; wheat bran $48, gray shorts $48, standard midds. $48.
Seattle: Demand improved; trend firm; supply tight; $45 ton, delivered common transit points, carlots.
Portland: Demand good; trend higher; supply ample; $44.
Ogden: Supply average; to Utah and Idaho: red bran and mill run $46, middlings $50; to Denver: red bran and mill run $52, middlings $57; to California: red bran and mill run $52.50, middlings $57.50, f.o.b. San Francisco and Los Angeles.
Los Angeles: Demand good; supply adequate; trend stronger; mill run, Utah-Idaho

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billing, sacked $54.50@55.50; red bran, delivered CCF, sacked $59@59.50.

MINERAL FEED

Ogden: Supply average; $106.50 ton in 50-lb. blocks; $96.50 ton, granular, 50-lb. bags.

Portland: Demand slow; supply ample; trend unchanged; $42.

Sioux City: 50-lb. mineral blocks, 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Ft. Worth: Demand fair; supply ample; all-purpose granules $85, block $93, mineral phosphorus 6%, granules $104, block $109; cattle-sheep mineral 7% phosphorus, granules $97, block $102; hog mineral phosphorus 3½%, granules $87, phosphorus 2% $76 (all in 50-lb. paper bags).

Seattle: Demand steady; trend steady; supply good; competitive brands $45 ton, ex-warehouse; high phosphorus mixtures $65 ton, ex-warehouse.

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $95, 100-lb. bags $90, f.o.b. plant.

Denver: Demand spotty; trend unchanged; supply ample; 7.5% phenothiazine, 45-lb. block $4.50; 8.2% phosphorus, 50-lb. block $3.50; 7.5% phenothiazine, 8.2% phosphorus, 45-lb. block $5.25; 5% phosphorus, 50-lb. block $2.65.

MOLASSES

New Orleans: Demand fair; trend steady to higher; supply ample; 28¢ gal. in tank cars; 600-lb. drums $16.29, customers' drums.

Minneapolis: Market steady to stronger at 28@28½¢ gal., f.o.b. New Orleans; $35 ton, nominal, West Coast.

Ft. Worth: Demand good; supply very scarce; blackstrap 29¢ gal., f.o.b. Houston; delivered Ft. Worth trucks $57.29; seller's market price on date of shipment.

New York: Demand good; trend upward; supply limited; blackstrap 29¢ gal., tank cars, tank wagons, f.o.b. New York.

Kansas City: Demand possibly off a little but with usage still said pretty heavy; trend stronger; supply ample; 28@28¼¢ gal., for immediate or prompt.

Memphis: Demand poor; supply limited; trend unchanged; blackstrap 28¢ gal., tank car, f.o.b. New Orleans.

Atlanta: Citrus molasses—demand good; supply limited; trend strong; $25 ton, bulk, f.o.b. Florida producing points.

Buffalo: Demand good; trend higher; supply poor; 29½¢ gal., f.o.b. Albany.

Boston: Demand steady; supply ample; 29½¢ gal. in tank cars.

Seattle: Demand steady; trend firm; supply good; $35 ton, f.o.b. Seattle, tank car lots.

Cincinnati: Demand fair; trend steady to higher; supply fair; 28¢ gal., New Orleans.

Louisville: Demand fair; trend steady; supply normal; in tank car lots, f.o.b. Gulf ports 28¢ gal.

Denver: Demand fair; trend strong; supply ample; 28¢.

Los Angeles: Demand good; trend steady; supply ample; $35, f.o.b. tank cars; $35.25, f.o.b. tank trucks, both Los Angeles harbor.

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NIACIN

New York: Trend steady; $8 kilo, 50-kilo lots; $8.10 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Minneapolis: Market moved down, but recovered most of the losses by the end of the week; demand slow to fair. Quotations: feeding rolled oats $89, standard pulverized $51.50, feeding oatmeal $74, reground oat feed $23, nominal, crimped oats $64.

St. Louis: Demand good; trend higher; supply adequate; reground oat feed $22.50 in 100-lb. burlap sacks; pulverized white oats $49 ton, choice $50.50.

Chicago: Demand fair; supply adequate; reground oat feed $21; fine ground feeding oatmeal $78@80; feeding rolled oats $88@90.

Seattle: Demand slow; trend firm; supply good; whole oats $67 ton, ground oats $68 ton, rolled oats $71 ton, all ex-warehouse, l.c.l.

Ft. Worth: Demand fair; supply scarce for immediate delivery; oat millfeed $52.40, reground oat millfeed $33.40.

New Orleans: Demand fair; trend steady to higher; supply adequate; steam crimped oats $78@80, pulverized white oats $57@59, mixed feed oats $56@58.

Portland: Demand good; trend higher; supply ample; rolled $66, ground $63, cleaned $67.

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $25; pulverized white oats $53; rolled oats $96@97.

Louisville: Demand fair; trend firm; supply normal; reground $27.25, rolled $97.75, feeding $87.25, pulverized white $54.25, crimped white $76.25.

Philadelphia: Demand dull; supplies fair to light; pulverized white oats $54.50; Canadian oat feed $27, domestic low grade $20, fancy grade $25.

Boston: Demand steady; supply adequate; white pulverized $58, reground oat feed $20.50@21.

Memphis: Demand poor; trend down; supply limited; 3½% protein, reground oat feed $28.

Los Angeles: Demand slow; trend steady; supply ample; white pulverized $70.

OYSTER SHELL

Boston: Demand good; supply plentiful; $23.21 in paper.

Seattle: Demand slack; trend steady; supply good; western $28 ton, ex-warehouse; eastern $32 ton, ex-warehouse.

New Orleans: Demand fair; trend steady; supply adequate; $15@18 local.

Portland: Demand good; supply ample; trend unchanged; western $30, eastern $36; granite grits $26.50, crystal grits $26.50.

Cincinnati: Demand fair; trend steady; supply adequate; $21.75.

Louisville: Demand fair to good; trend steady; supply normal; in 80-lb. bags $21.34 ton, in 50-lb. bags $21.54 ton, in 25-lb. bags $21.84 ton.

Los Angeles: Demand and trend steady; supply ample; local $18.25, eastern $25.

PEANUT OIL MEAL

Milwaukee: Demand and supply fair; 26% $47.

Atlanta: Demand slow; trend steady; supply limited; 45% $65, sacked, immediate.

PEAT MOSS

Boston: Demand and supply steady; $3@3.10 bale.

Philadelphia: Demand slow; supply fair; $2.95, f.o.b. pier.

Portland: Demand slow; supply ample; trend unchanged; $3.15.

Los Angeles: Demand and trend steady; supply ample; Canadian, 6.1 cu. ft. bales $3.45, in 300-bale lots, delivered California main line points.

Seattle: Demand and trend steady; supply good; $2.90 bale, delivered, carlots, horticultural and poultry.

Chicago: Demand good; supply ample; $3.75@3.85 standard 7½ cu. ft. bale.

New Orleans: Demand good; trend steady; supply ample; standard bale, German moss $3.15@3.45, dock.

POTASSIUM IODIDE, U.S.P.

St. Louis: Demand fair; trend steady; supply ample; 100% pure potassium U.S.P., 250-lb. average in drums $1.90, 100-lb. lots in fiber drums $1.92; 90% potassium iodide calcium stearate mixture, 225-lb. lots in leverpak drums $1.81, 100-lb. lots in fiber drums $1.85.

New York: Trend steady; granular or crystals $1.80½ lb. in 250-lb. drums, $1.92 lb. in 100-lb. drums, $1.95 lb. in 25-lb. drums; 90% KI in calcium stearate or carbonate mixtures, $1.81 lb. in 250-lb. drums or 200-lb. lots, $1.83 lb. in 100-lb. drums, $1.96 lb. in 25-lb. drums; f.o.b. New York, New Jersey or Pennsylvania; freight allowed to destination on 100-lb. drums or larger packings.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gram in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Ft. Worth: Demand slow; supply moderate; carlots, rice bran $38@39, prompt shipment, f.o.b. south Texas rice mills; hulls $4@5, f.o.b. mills.

New Orleans: Demand slow; trend firm; supply adequate; bran $38@40, Louisiana mills.

Los Angeles: Demand good; trend steady; supply scarce; bran $56.61.

Atlanta: Demand fair; trend steady; supply limited; bran $46, sacked, immediate.

Memphis: Demand good; trend steady to high; supply limited; bran $37, sacked, f.o.b. Arkansas points.

SCREENINGS

Buffalo: Demand and supply fair; trend steady; ground, sacked $32.50, New York; unground, bulk $22.50, New York.

Cincinnati: Demand and supply fair; trend steady on Canadian, steady to higher on barley; Canadian $28; barley $26@34.

Denver: Demand fair; trend strong; supply ample; $41 for ground grain.

Ft. Worth: Demand good; supply limited; 12% protein ground $42.50, sacked, delivered Ft. Worth, last half December.

Minneapolis: Light supplies relative to demand have strengthened values and slowed down deliveries. Quotations: country run $20@30, lights $12@22, mediums $23@32, heavies $33@42; Canadian $19, bulk, Duluth; Canadian ground $30, sacked; flax screenings $25@28.

Chicago: Demand fair; supply plentiful; ground grain screenings $30; Canadian, bulk $22.

New Orleans: Demand fair; trend firm; supply limited; 3/64 in. grind $40.20@42.20.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $18.85@19.10.
Buffalo: $23.65@23.90.
Chicago: $23.10@23.35.
Cincinnati: $21.80@22.
Des Moines: $23.60@23.85.
Kansas City: $23.20@23.45.
Memphis: $20.50@20.70.
Minneapolis: $24.25@25.55.
Philadelphia: $22.65@22.90.
St. Louis: $22.50@22.75.
Tampa: $18@18.20.
Toronto: $27.50@27.80.

SORGHUMS

Ft. Worth: Demand fair; supply sufficient; carlots, bulk, No. 2 yellow milo $2.43@2.45, delivered Texas common points.

Cincinnati: Demand fair; trend steady; supply adequate; $3.

Los Angeles: Demand fair; trend steady; supply ample; No. 2 milo, delivered CCF, prompt $2.87½.

SOYBEAN OIL MEAL

Memphis: Demand fair; trend easier; supply ample; prime 44% solvent $54, sacked, f.o.b. Memphis.

Atlanta: Demand fair; trend steady; supply ample; 44% $64.50, sacked, immediate.

Kansas City: Demand slow; trend weaker on big drop in soybean price. Supply ample; $46@46.50, bulk, Decatur, for Kansas City and western shipment of nearby, with December through January going at $45.50@46; $47@47.50, unrestricted.

Boston: Demand good; supply ample; $46@46.50, f.o.b. Decatur.

Milwaukee: Demand fair; supply good; $46, bulk, Decatur.

Omaha: Demand fair; supply ample; 44% solvent $61.50, pellets $64; 41% expeller $69.

Philadelphia: Demand slow; supply ample; $47, bulk, Decatur.

Louisville: Demand slow; trend easy; supply normal; $58.10 ton.

Minneapolis: Market tight for nearby, with spot shipment around $42.50@43.50, bulk, Decatur, and all-December delivery $41@41.50.

Denver: Demand fair; trend some weaker; supply ample; $69.

Ogden: Supply average; $85@90.

Portland: Demand slow; trend lower; supply ample; December $42.50.

Cincinnati: Demand fair; trend steady; supply adequate; $47@48, bulk, Decatur.

Los Angeles: Demand slow; trend weak; supply ample; $75.94@76.94, delivered CCP.

Wichita: Demand good; supply sufficient; 44% $64, 50% $72, f.o.b. Wichita.

Ft. Worth: Demand fair; supply sufficient; carlots, 44% $68.50@70 depending on origin, December; truck loads $66.

Decatur: Demand fair; supply good; 44% bulk, unrestricted $47.

Seattle: Demand slack; trend steady; supply good; $75 ton, delivered, carlots, December shipment.

Chicago: Prices of soybean oil meal advanced early in the week ending Dec. 7, but dipped sharply at the close, reflecting a sell-off in the soybean market. Prices were only slightly down for the week; 44% soybean oil meal $56@56.50.

New Orleans: Demand good; trend higher; supply ample; 49% sacked $69.50@71.50.

SUNFLOWER SEED

St. Louis: Demand fair; trend steady; supply ample; black—large $15.50 cwt., medium $14 cwt., small $10.50 cwt.; gray—large $16 cwt., medium $14.50 cwt., small $10.50 cwt.

TANKAGE

Wichita: Demand fair; supply ample; 50% $77.50, f.o.b. plant.

Ft. Worth: Demand and supply light; 60% digester $76@78, f.o.b. Ft. Worth.

Kansas City: Demand strong; supply ample, but some packers sold ahead; trend steady; 60% digester $73@75, sacked.

Omaha: Demand slow; supply ample; $75.

Chicago: Demand and supply fair; 60% protein $70@78.

St. Louis: Demand slow; trend lower; supply adequate; 60% $79@81 ton bulk, $84@86 ton in paper sacks, $83@85 ton in burlap sacks.

New Orleans: Demand fair; trend steady; supply ample; 60% $85@87.50.

Los Angeles: Demand fair; trend steady; supply ample; $1.40 a unit of protein.

Cincinnati: Demand good; trend steady; supply adequate; 60% digester $68@74.50.

St. Paul: Market firmer at $74 for 60% digester.

PRICE RATIOS

(Continued from page 1)

a hundredweight of hog would buy 13 bu. corn. A year ago it would only purchase 11.1 bu. corn.

The turkey-feed ratio was 7.3 in mid-November, the same as on Oct. 15 and somewhat below the 8.9 of Nov. 15, 1955, the USDA report shows. The farm chicken-feed ratio Nov. 15 was 3.7, the same as a month previously and considerably below the 5.2 of the previous year.

The feed index advanced 1% during the month ended Nov. 15 as prices paid for most feed items strengthened. Prices paid for mixed dairy feed were above mid-October and reflected a moderate increase over those prevailing during the corresponding period last year. Prices paid for mixed poultry feed and for broiler growing mash were down generally from the previous month.

Average prices for feed paid by farmers in mid-November according to USDA figures, were as follows (in cwt., with figures for the previous month and a year ago in that order, in parentheses): Laying mash $4.47 ($4.49 and $4.38); broiler growing mash $4.91 ($4.97 and $4.77); dairy feed under 29% protein $3.76 ($3.71 and $3.62).

Prices farmers received for hogs, beef cattle, calves and sheep were down Nov. 15 compared with the previous month. On the other hand, prices received by farmers for dairy products increased seasonally during the month ended Nov. 15.

The mid-November index of prices paid by farmers was 1% higher than a month earlier but 3% under the all-time November peak recorded in 1951.

CORN POLICY

(Continued from page 1)

USDA receives the first bids on corn for export on Dec. 6.

The export trade may be guided in its bid for corn if it will use as a basis the relationship of sorghums and oats to corn on a delivered basis at western European ports on a total digestible nutrient comparison.

Some quarters believe that USDA may be in for a surprise since domestic processors are finding that grain sorghums, particularly the new hybrid seed sorghum types, are now running a close race with corn as a feed package ingredient.

USDA will continue to offer out-of-condition corn for sale at country bin sites both for domestic markets and export.

Trade opinion sampled here this past week is not in full agreement as to the consequences of this new expanded export sales policy for corn. The best analysis of this trade opinion is that it probably will have an immediate psychological bearish reaction. However, observers believe that the basic loan of $1.25 bu. for non-cooperators will check any marked decline. In fact, such short term market breaks as a result of this new export corn sales policy may freeze corn farmers' intentions to sell and eventually firm up the domestic price of corn.

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Corn Millers Will Double Spending for Promotion

By HENRY S. FRENCH
Feedstuffs Editorial Staff

CHICAGO — The "Forward Look" is the answer of the American Corn Millers Federation to the continuing decline in the per capita consumption of corn meal. Holding its 39th annual convention in Chicago last week, the group kicked off an expanded promotion program which doubles expenditures for 1957, calling for raising $50,200 to push its corn meal and self-rising corn meal program in the year ahead.

Meeting at the Drake Hotel here Nov. 26-27, the group also discussed at length the distribution methods of the government's domestic corn meal donation program, and received the resignation of Harry Hunter, secretary of ACMF for 21 years. Around 60 members and guests attended.

All officers were reelected. They are: Spencer H. Werner, Illinois Cereal Mills, Paris, Ill., president; Frederick L. King, Patent Cereal Co., Geneva, N.Y., vice president; Leslie A. Ford, Shawnee (Okla.) Milling Co., second vice president, and M. F. Lynch, Quaker Oats Co., Chicago, treasurer.

Pointing at the drastic decline per capita consumption of corn meal has taken—from 22.8 lb. in 1935 to 10 in 1956—H. Rex Edison, J. F. Bess & Co., Gastonia, N.C., chairman of the corn meal and self-rising corn meal program, stressed the need for action to protect markets.

Miss Martha Love, director of educational service for the ACMF, in a presentation of the "Forward Look," said the program has grown from a mere publicity program to a consumer education program with the major function of enabling more millers to sell more corn meal at a profit, and expand consumption of corn meal.

Harry Hunter, whose retirement as secretary becomes effective May 1, 1957, will serve as director of the corn meal promotion program. He will move to Cullowhee, N.C.

Plans for a Special Week

Efforts will be made to have a Corn Meal Week set by state governors in future years. C. T. Perkerson, J. D. Perkerson's Sons, Austell, Ga., told how he was successful in getting such a week proclaimed in Georgia this year.

One of the hottest subjects discussed at the meeting, most of it was done at the closed directors' meeting, was the government's disposal of corn meal and other cereal products under Public Law 311 and Public Law 540, referring to distribution of surplus products to needy persons and the school lunch and export programs. Many millers believe the program has grown to such proportions that it is circumventing normal channels of trade, although the feeling is not unanimous.

Mr. Lynch, Quaker Oats Co., prepared a report on the relief program at the direction of Mr. Werner, and presented it at the meeting. He pointed out that 162,500,000 lb. corn meal have been processed by the government for the give-away programs from Oct., 1955 through Dec., 1956. And, more than 3,400,000 persons have been receiving the corn meal free of charge. The program, he said, has interfered with normal marketing of corn meal, and now government distribution has been substituted for commercial distribution to persons not actually in need.

Marvin L. McLain, assistant secretary of agriculture, U.S. Department of Agriculture, Washington, D.C., addressing the group, said he looks forward to the time when it will not be necessary to undertake food donation activities on a broad scale. However, the problem now is to dispose of large surpluses which have accumulated under previous programs. One sure way to avoid giveaway programs is to elect legislators who will do something about programs which lead to surpluses.

Normal Channels Asked

Mr. Lynch reported it would appear that the members agree that the distribution of corn meal should be put back into normal channels of trade. However, there was no total agreement during discussions by the directors as to whether or not the program should be continued in all or in part. Therefore, a committee was appointed to work with retail and wholesale grocers associations and other persons having similar interests and try to persuade government officials to remove as many of the objectionable features of the program as possible.

Dr. F. W. Hill, Cornell University Agricultural Experiment Station, Ithaca, N.Y., presented a summary of a study of the metabolizable energy content of hominy feed. The federation has supported work to determine values of hominy feed for use as animal feeds. Further reports should be available soon.

The meeting ended with a reception sponsored by Merck & Co., an associate member of the group.

Members of the board of directors of the American Corn Millers Federation, named at the meeting, are as follows:

Robert C. Miner, chairman, Miner-Hillard Milling Co., Wilkes-Barre, Pa.; H. Rex Edison, J. F. Bess & Co., Gastonia, N.C.; James A. Gwinn, Gwinn Bros. & Co., Huntington, W.Va.; E. H. Humphreys, Humphreys Mills Co., Memphis, Tenn.; Howard Lauhoff, Lauhoff Grain Co., Danville, Ill.; Cecil R. Martin, the Quaker Oats Co., St. Joseph, Mo.; E. Walter Morrison, the Morrison Milling Co., Denton, Texas; E. E. Pattillo, Tallapoosa Milling Co., East Tallassee, Ala.; J. R. Short, Jr., J. R. Short Milling Co., Chicago, Ill.; Thomas W. Staley, Staley Milling Co., Kansas City, Mo.; A. E. Udell, Kellogg Co., Battle Creek, Mich.; Cecil M. Webb, Dixie Lily Milling Co., Inc., Tampa, Fla.; Cohen T. Williams, Martha White Mills, Inc., Nashville, Tenn.; Wm. H. Williams, Jr., Kellogg Co., Omaha, Neb., and Frank A. Yost, Hopkinsville Milling Co., Hopkinsville, Ky.

DROUTH FEED ORDERS HEAVY

WASHINGTON—The U.S. Department of Agriculture reports that under the 1956 emergency feed program 40,991 farmer purchase orders were issued during the week for 1,832,438 cwt. of approved grains or mixed feeds. This brought the total purchase orders issued since the first of July to 706,394 and the total quantity to 34,947,105 cwt. as of Nov. 29.

Ernest L. Peterson, 55, Traffic Official, Dies

MINNEAPOLIS—Ernest L. Peterson, 55, director of traffic of the Minneapolis Traffic Assn., died Nov. 30 at a Minneapolis hospital.

Mr. Peterson, who was well known as an expert on freight rates, joined the Minneapolis Traffic Assn. in 1949. He came here from Kansas City where he was assistant transportation chief of the Kansas City Board of Trade.

In numerous appearances before the Interstate Commerce Commission, Mr. Peterson appeared as a counsel and rate witness in cases which involved freight rates detrimental to shippers in this area. He waged a strong fight to overcome the annual boxcar shortages which hampered the movement of grain to market.

Chicago Feed Club Christmas Party Set

CHICAGO—A program of entertainment loaded with all-star talent is promised for the annual Christmas party of the Chicago Feed Club, scheduled for Dec. 17 at the Congress Hotel. Cocktails will be served at 6 p.m., with dinner at 7.

Johnnie Puleo and his Harmonica Rascals, well-known television performers, will lead off the show, and Val de Val, exotic dancer, who became famous throughout the feed industry after her performance at last year's party, will render the finale. Several other acts also will appear.

Twenty-one door prizes, to include a portable television set, as well as turkeys and hams, will be awarded during the evening.

Protein Meal Lower At Memphis Market

MEMPHIS—Prices on protein oil meal futures dropped early this week and closed lower Dec. 5 than the previous week on the Memphis Board of Trade.

Long liquidation and weakness in soybeans combined to send soybean oil meal prices down. There were some lifting of hedges and new buying. Selling came from liquidation and also profit-taking.

Trading in December solvent cottonseed oil meal has been rather active because of a rather tight situation. Shorts have been buying in contracts and longs liquidating, as well as some new trades.

Exports were sold during the week in sacked cottonseed oil meal for December, January and February shipment.

Dealings on the Memphis Board of Trade for the week included 16,700 tons of unrestricted soybean oil meal, 4,000 tons of Eastern Trunk Line soybean oil meal, 2,200 tons of solvent cottonseed oil meal and 900 tons of sacked cottonseed oil meal.

LIVER OILS

(Continued from page 1)

catches. The winter fishing season started Nov. 8 and practically no fish have been brought in.

Although the Japanese supply situation is most serious at the present time, some observers are inclined to think that declarations of some shippers regarding distant supply might be somewhat exaggerated as a protective position pending a clearer picture of future fishing conditions.

The October export record of the Japanese Ministry of Trade and Industry showed a total dollar volume of $501,633 in fish liver oils. This was for potencies of 5,000 and up, but the greater percentage in lower potency oils. Of this total, this country's share was roughly $210,000.

This is in direct contrast to past export records showing between one half and two thirds of the volume going to the U.S., and records of earlier years where the U.S. at times took approximately 75% of Japanese production.

Other Factors

Although the scarcity of Japanese oils is the basic cause of the shortage, trade authorities note other factors which affect the situation now and might assume greater importance in the future. These factors include:

1. Some trade observers report an increased usage of natural vitamin A in the past 6 to 8 months. Admitting possible variance of opinion, these same observers estimate use of synthetic dry A at between 60 and 70% of total vitamin A consumed by the feed industry. Some contend the figure is closer to the lower point in the range, and others lean toward the higher point.

2. One spokesman stated that the margarine industry has shown some interest in natural oils lately and said that if this demand develops it will be a definite factor in availability of supply for feeding purposes.

3. Shipments of fish liver oils from Japan to European and other countries have increased and probably will continue to increase.

4. Norway, Iceland, Portugal and other nations historically moderate suppliers of the U.S., especially for cod liver oil, are also in a tight supply situation and have increased exports to Europe.

Prices Higher

The effect on price structure is already apparent and a strengthening in prices appears inevitable. Raw materials have advanced approximately 15% from figures of one month ago, and finished oils to the feed industry are up about 20% in the past month. One observer who has followed the situation very closely stated that "although it is difficult to project into the future, in my opinion prices will probably advance another 15 to 20% by early next year." This does not take into consideration freight increases currently being set.

In this connection, a representative of a leading firm offering oils to the feed industry stated that he thought in due fairness it should be noted that although prices are now advancing, they have consistently been out of line with other feed ingredients. He said that feeding oil prices up to a few months ago had been as cheap or cheaper than those offered on the pre-war market.

Although some firms supplying the feed industry appear in a fair position with supplies that will carry them for a few months, others are reported in a very short position. In the over-all picture, the industry definitely appears to be on the short side with the gap to be filled reported by reliable observers at between 10 and 12% of available supply.

Although some supply of cod liver oil has been reported at Newfoundland and Nova Scotia, it is indicated that at least a greater percentage of this material probably would not measure up to the 850 A, 85 D potency required by import regulations to enter this country as cod liver oil for feeding purposes.

It is also reported that the offered price for these oils has been so low that fleet owners have instructed the fishermen not to bother salvaging the livers.

It is tacitly agreed that although there will always be some supply of oils of varying potencies, there is no way to predict the future and the supply will be tight and the price trend strong for some time.

REFERENDUM

(Continued from page 4)

ment officials prominent observers say that the corn referendum for the base acreage allotment for the soil bank will be defeated.

Most of these experts say the per-bushel payment is not sufficiently attractive to gain farmer support and that the commercial Corn Belt will prefer the lower acreage allotment under the AAA act plus the higher level of support. They say farmers fear that Mr. Benson would in the next three years lower the level of support for corn, an alternative which would be discretionary with him if the corn belt farmers voted to approve the soil bank base acreage allotment in the forthcoming referendum.

This judgment is based largely on strong statements by Farmers Union representatives. On the other hand the American Farm Bureau Federation wants to put over the soil bank acreage allotment proposal. This referendum may be a test of farm strength of these two organizations.

Farm Commodity-Feed Price Ratios

	U.S.	New Eng.	Mid-Atl.	East North Cent.	West North Cent.	South Atl.	East South Cent.	West South Cent.	Mount.	Pac.
CHICKEN-FEED—										
Farm Chickens:										
November, 1956	3.7	3.5	4.5	3.9	3.2	4.5	4.3	3.9	4.2	3.1
October, 1956	3.7	3.3	4.4	4.1	3.3	4.6	4.5	3.8	4.7	3.3
November, 1955	5.2	4.6	5.9	5.8	5.0	5.4	5.7	5.4	4.9	4.5
Average (1945-54)	6.7									
Average (Nov., 1945-54)	6.2									
Broilers:										
November, 1956	3.5	3.4	4.2	3.8	4.0	3.4	3.4	3.4	4.2	3.5
October, 1956	3.5	3.5	4.2	3.8	3.8	3.4	3.5	3.5	4.5	3.7
November, 1955	4.4	4.6	5.9	5.8	5.0	5.4	5.7	5.4	4.9	4.5
TURKEY-FEED—										
November, 1956	7.3	7.9	9.3	7.5	8.1	7.0	8.3	6.7	7.1	7.3
October, 1956	7.3	7.8	9.1	7.7	8.3	6.8	8.1	6.8	7.0	6.3
November, 1955	8.9	8.6	10.6	9.9	9.7	8.4	9.3	8.7	8.0	7.1
Average (1945-54)	9.2									
Average (Nov., 1945-54)	9.5									
EGG-FEED—										
November, 1956	10.5	11.1	11.8	10.1	8.9	12.2	12.4	10.7	11.9	9.9
October, 1956	10.8	11.8	12.2	10.7	9.5	12.0	12.0	10.6	11.0	9.7
November, 1955	12.9	13.8	14.6	13.0	11.5	14.2	14.7	13.5	12.2	10.7
Average (1945-54)	11.4									
Average (Nov., 1945-54)	13.2									

	U.S.	North Atl.	East North Cent.	West North Cent.	South Atl.	South Cent.	West
MILK-FEED—							
November, 1956	1.52	1.51	1.50	1.51	1.70	1.73	1.45
October, 1956	1.47	1.47	1.42	1.50	1.66	1.62	1.39
November, 1955	1.51	1.48	1.51	1.54	1.66	1.74	1.40
Average (1935-54)	1.28						
Average (Nov., 1935-54)	1.44						
BUTTERFAT-FEED—							
November, 1956	23.1	...	20.9	25.5	...	16.1	18.9
October, 1956	22.4	...	19.3	24.3	...	15.4	18.6
November, 1955	22.4	...	21.1	24.5	...	16.3	18.1
Average (1935-54)	23.5						
Average (Nov., 1935-54)	25.0						

	U.S.	North Cent.
HOG-CORN—		
November, 1956	11.7	11.8
October, 1956	13.0	13.2
November, 1955	11.1	11.0
Average (1935-54)	13.2	14.0
Average (Nov., 1935-54)	14.0	14.8

NOTE: Ratios computed at mid-month by U.S. Department of Agriculture. Ratios represent number of pounds of poultry feed equal in value to 1 lb. live farm chicken, turkey or 1 doz. eggs; pounds broiler growing mash equal to 1 lb. broiler; pounds concentrate rations equal to 1 lb. milk or butterfat; bushels of corn equal to 100 lb. hog. Increases in ratios are favorable to the feeder.

KEY TO GEOGRAPHICAL DIVISIONS

Here is a guide to the states included in the geographical divisions listed in the accompanying commodity-feed price ratios:

New England: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

Mid-Atlantic: New York, New Jersey, Pennsylvania.

North Atlantic: New England and Mid-Atlantic states combined.

East North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin.

West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.

North Central: Combinations of the two foregoing.

South Atlantic: Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida.

East South Central: Kentucky, Tennessee, Alabama, Mississippi.

West South Central: Arkansas, Louisiana, Oklahoma, Texas.

South Central: Combination of the two above.

Pacific: Washington, Oregon, California.

Mountain: Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Montana.

West: Combination of the two above.

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Grain Sanitation Topic at Cereal Chemists Meeting

MINNEAPOLIS—The work of the Food and Drug Administration in the grain sanitation program was related here at a meeting of the Northwest Section of the American Association of Cereal Chemists. The speaker was Norman Foster, head chemist with the FDA office at Minneapolis.

There have been no seizures of grain in the Minneapolis area due to contamination during September or October, Mr. Foster said. Earlier there were six cars of wheat, one of barley and one of oats seized because of mercurial fungicide contamination, he said.

FDA has no tolerance for poisons in grain, Mr. Foster pointed out, and probably never will establish any tolerances for them. This, he said, is because there simply is no need for any poisons to be present in grain.

However, this does not mean that the government will seize a car of grain because a few kernels therein have mercurial fungicide on them. There must be enough poison in the grain to be proved by chemical analysis, Mr. Foster said.

The same policy applies to rodent pellets in grain, Mr. Foster said. The government will take action only after there is definite proof that there are pellets present in the grain.

Mr. Foster also said there is some danger of retrogression in the grain sanitation program. He said some firms had started to do a good job in promoting grain sanitation, but that now they were inclined to relax their standards.

While the administration work of FDA is confidential, Mr. Foster said, its analytical methods are not. He said visitors are welcome to come to the office to talk over their grain sanitation problems.

San Francisco Grain Exchange Party Dec. 21

SAN FRANCISCO — The San Francisco Grain Exchange will hold its annual Christmas party on Dec. 21, from 4-6 p.m. on the exchange floor in the Merchants Exchange Building, 465 California St.

Ken Iverson, Riverside Elevators, who is in charge of the party committee, reported invitations to the cocktail party are being sent to exchange members, their employees and wives.

Meeting on Standards

MANHATTAN, KANSAS — John A. Shellenberger, head of the flour and feeding milling industries department at Kansas State College, left Dec. 2 to attend a meeting of the International Standards Committee in Vienna, Austria. Committee members are to discuss development of uniform technical problems to evaluate cereals and cereal products. Mr. Shellenberger is representing the Foreign Agricultural Service of the U.S. Department of Agriculture.

ADDITION COMPLETE

SISSETON, S.D.—A new addition has been completed by the Claire City Elevator here for the production of hog feeds.

H. J. Souder, Publisher Of Poultryman, Dies

VINELAND, N.J.—H. J. Souder, publisher of the Poultryman, national newspaper for the poultry industry, died here at the age of 68.

Mr. Souder was a native and lifelong resident of southern New Jersey and had spent his entire business career in the journalism profession. In 1934 he purchased the New Jersey Poultryman and within two years changed the publication's title to the Poultryman.

In 1953 the New Jersey State Poultry Assn. awarded Mr. Souder the Golden Egg, an honor recognizing his contributions to the poultry industry.

MARKETS

(Continued from page 2)

bers, indicating that growers believe consumer demands will be satisfactory during the months ahead.

Formula feed prices remained steady to up slightly this week, and mill operations were increased somewhat to keep production abreast of orders.

Mountain States

Reports generally reflect a brisk business in most formula feeds. Broiler feeding is slow in an area which has little broiler feeding at best.

Movement of coarse grains indicated an increase in feed sales over recent levels or at least some optimism for future sales. Indications are that feeders and ranchers are not stocking too heavily but instead are buying just as they need feed. Feed lots are well filled for the time of year. An increase can probably be expected after the first of the year.

Most mills have increased running time to keep up with the demand for sales and previously booked feed.

Sales are far above the first part of the season and the same time last year, so most members of the trade are optimistic about prospects for the rest of the winter. Most of the cattle now in the drouth area will probably remain as the weaker operators have thinned down to the minimum.

Central States

Feed sales continued to expand in the central states during the week ending Dec. 5, and most trade spokesmen visualize satisfactory business for the remainder of the year. The upturn generally applied to most feeds, but cattle feed was the front runner at this time.

In adding up sales for November, a few manufacturers say their business is equal to the same month a year ago, and they remark that volume then was good. The big advance, they say, occurred in about the last ten days of the month.

The turn in business came with the advent of cold weather, and a few believe part of the business was induced by the development of a tense world situation. Too, buying had been slack for some time, and inventories were low. Everybody wanted something at once.

Prices last week were up $1@1.50 ton, reflecting higher ingredient costs. Hog feeds are starting to revive, but broiler feeds show some tendency to taper off in volume, feeling the effect

Production of Millfeed Increases

with season total of (1) principal mills in Nebraska, Kansas and Oklahoma and the cities of Kansas City and St. Joseph; (2) principal mills of Minnesota, Iowa, North and South Dakota and Montana, including Minneapolis, St. Paul and Duluth-Superior; (3) mills of Buffalo, N.Y. Production computed on the basis of 72% flour production.

	Southwest* Weekly production	Southwest* Crop year to date	Northwest* Weekly production	Northwest* Crop year to date	Buffalo† Weekly production	Buffalo† Crop year to date	Combined** Weekly production	Combined** Crop yr. to date
Nov. 26-30	27,840	581,478	13,784	307,880	11,388	244,713	53,012	1,134,070
Prev. week	‡24,705		‡11,556		9,783		‡46,044	
Two wks. ago	28,859		14,484		11,741		55,084	
1955	25,810	566,271	14,411	305,073	9,885	184,563	50,106	1,055,907
1954	27,065	549,444	13,641	401,152	11,200	234,430	51,906	1,185,026
1953	23,487	528,959	14,757	307,838	10,519	224,573	48,763	1,061,370
1952	24,098	552,775	14,463	338,826	10,723	226,701	49,284	1,118,302

*Principal mills. **74% of total capacity. †All mills. ‡Revised.

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of the low broiler market.

Sharp drops in the price of grains and soybeans on the major exchanges were a source of considerable comment in trade circles during the week, although the market for coarse grains at a local level was not affected, these grains being governed by loan levels rather than by fluctuations at Chicago and Kansas City.

Pacific Northwest

Freezing weather and a general snow throughout the Pacific Northwest promised to give a boost to dairy feeding, and the market for commercial laying rations continued good. However, turkey feeds these days are confined to breeder rations, and the market for broiler feeds is not good. Heavy cuts are being made in broiler flocks, according to feed formulators, and with cheap eastern fryers continuing to flow into this market, the long-range outlook does not appear to be too favorable.

Formula feed prices at the close of the week were down $1@2 ton, and further cuts appeared to be in the offing, cheaper corn and soybean meal being noted as the basis for the easy market. Substantial quantities of cottonseed meal from California are being offered to the trade by itinerant truckers, also, and this has its influence on the protein price structure as well.

Millfeed continues strong, and demand is good, but mostly for nearby shipment. The trade feels that when current commitments to Japan are shipped, the market may slacken off because production of flour continues at a good rate.

Northeast

Dairy feeds and egg mashes were the backbone of a generally steady formula feed market last week. Broiler feed demand, however, was slow, and turkey feeds are in their seasonal slump.

Broiler prices are still very depressed, with some eastern prices as low as 14¢ lb. One spokesman said he doesn't know how growers can stay in the business at these levels. The Buffalo area market was weak at 18@19¢ lb. Egg prices tumbled and were off from 4¢ to 5¢ doz.

Feed manufacturers are proceeding with caution in stockpiling ingredients because of the poor outlook in the poultry business.

Running time of formula feed manufacturers averaged 40 hours last week.

Millfeed sales were spotty. Consumers held back from the market after the break in the grain market Dec. 4 in hopes the drop would bring lower levels in millfeeds.

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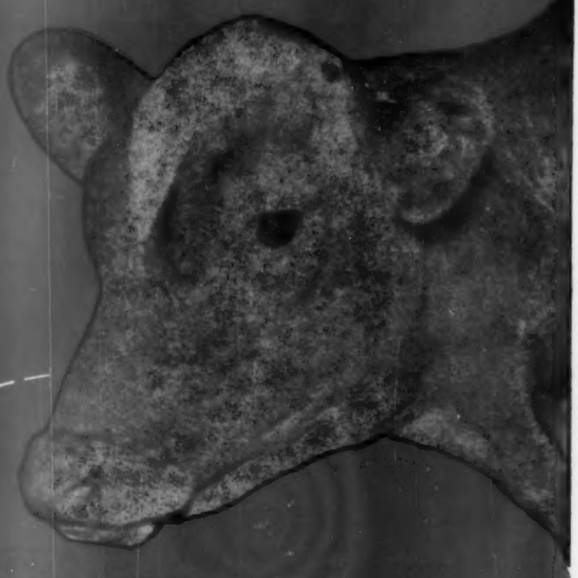

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